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ORIGINAL ARTICLES.

SOME PRACTICAL POINTS IN THE PHYSICS OF STEAM STERILIZATION.[1]

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NOTHING that I shall present to-night is particularly new. I invite your attention not to newly found principles but to a property of steam which is too little appreciated by the manufacturers of our sterilizers, and by many of our profession. As a result, much of our apparatus of the most perfect workmanship fails to give the sterilization indicated by the gages and thermometers. I shall say nothing of the bacteriology of sterilization, but confine myself to the physical principles involved in getting an equal temperature throughout a steam sterilizer, the lamentable shortcomings of most sterilizers, owing to lack of recognition of these principles, and the very simple and practical means by which the errors can be avoided.

Let me first state a few facts, and then rehearse a few experiments which demonstrate them: Steam has a much lower specific gravity than air; air is a poor conductor of heat; air will not condense except at an extraordinarily low temperature and high pressure. Steam will condense at once on coming in contact with a cooler body, and give up its latent heat to that body. This makes it a perfect vehicle for conveying heat. The lack of this quality of condensation makes air an extremely poor vehicle for conveying heat.

When sterilization is about to begin in a sterilizer, the sterilizer contains, besides the objects to be sterilized, air. If the temperature in the sterilizer is to be made the same in every part of it, within a reasonable time, the air must be entirely got rid of and replaced by steam. Owing to the great difference in specific gravity between steam and air the air will be soonest got rid of if due regard is paid to this difference of specific gravity.

Let me now rehearse my experiments: For the first series of experiments I constructed a cylinder of tin two feet nine inches high and six inches in diameter. It had four openings for thermometers, placed one above the other at intervals of nine inches. These openings received thermometers through rubber stoppers. At the top and bottom were two more openings, provided with perforated stoppers carrying glass tubes. The apparatus was suspended vertically. The steam used was generated in a tin can over a gas flame. The same amount of flame was used in all the experiments. In describing the experiments the uppermost thermometers will be designated *a*, the others, in order from above down, *b*, *c*, and *d*. Readings were begun and time taken when any thermometer reached 40° Centigrade.

Experiment I.—Steam was introduced at the *top*, and the glass tube at the bottom served as the only vent. In 1 minute *a* rose from 40° to 82° C. In 1½ minutes *b* was at 40° and 30 seconds later had risen to 89° C. In 3¼ minutes *c* was at 40° and 30 seconds later had risen to 96° C. In 4¾ minutes *d* was at 40° and 30 seconds later had risen to 78° C. At the end of 9 minutes all four thermometers stood at 99° Centigrade and remained there. A moment later steam began to issue from the vent at the bottom.

Experiment II. — Steam was introduced at the *bottom*, and the tube at the top served as the only vent; *d* first indicated 40° C. and then, at very short intervals, *c*, *b*, and *a*. At the end of one minute all had reached 40° C. They all rose together, and at any given moment registered almost exactly the same temperature. As the temperature got higher the differences became less and less. At the end of 36 minutes all four thermometers stood at 99° C. and remained there.

Experiment III.—The upper opening was closed. A stopper with two holes was placed in the opening at the bottom. Steam was introduced through one opening, and the only vent was through the other. All four thermometers reached 40° C. within one minute of each other. They rose with almost perfect equality. At the end of 32 minutes all had reached 99° C. and remained there.

Experiment IV.—The opening at the bottom was closed. A stopper with two holes was placed in the upper opening. Steam was introduced through one opening and the only vent was through the other. Thermometer *a* was the first to reach 40° C. One minute later it had run up to 90° C. *B* stood at 40° C. and one minute later had run up to 90° C. In 6½ minutes *c* stood at 40° C. and went slowly up. In 20 minutes *d* stood at 40° C. and went very slowly up. At the end of an hour *a* and *b* both stood at 99¼° C.

[1] Read before the Harvard Medical Society of New York, January 7, 1899. For discussion, see page 285.

c at 99° C., and *d* at 73° C. With this arrangement of inlet and vent the replacement of air by steam was evidently extremely slow in the lower part.

The above four experiments show conclusively that the quicker the air is eliminated and replaced by steam the faster the temperature will reach the maximum for saturated steam at the given pressure (in this case, the atmospheric pressure), and that this will be quickest accomplished when gravity acts to the best advantage.

With the inlet above and outlet below the air could freely flow out and suffer the least possible dilution with the steam which entered above. The thermometers rose serially from above down, and with a sudden run of the mercury as the bulbs were left by the falling air and enveloped in the descending column of steam. Only air escaped below until the thermometers were all high. In 9 minutes they all registered 99° C.

In Experiment II. the steam entering below and the vent being above the steam swirled up through the cylinder and a mixture of steam and air escaped from the vent. The mixture of steam and air must have been nearly uniform throughout for the temperatures advanced almost simultaneously. The air was expelled by fractional dilution and only at the end of 36 minutes did all the thermometers stand at 99° C.—four times as long as it took in Experiment I.

In Experiment III. the inlet and vent were both below. The steam swirled up making a nearly uniform mixture with the air and the thermometers kept close together throughout. The air was expelled as in the last case by progressive dilution; but here, the vent being below, gravity assisted, and all thermometers registered 99° C. in 32 minutes — 4 minutes sooner than when the vent was at the top.

In Experiment IV., both inlet and vent being above, gravity had no influence whatever in expelling the air. Only the progressive dilution from diffusion and conversion was operative. The upper two thermometers rose quickly, but at the end of an hour the lowest thermometer stood at only 73° C.

The experiments show that in a sterilizer the steam should enter at the highest point, and the air find its exit at the lowest point.

A second set of experiments I made with a pressure-sterilizer at a pressure of 20 pounds. To take the temperature in the bottom of the sterilizer a hole was bored through the head of the sterilizer, and a thermometer so placed that its bulb, protected by a glass covering, was within the sterilizing-chamber very close to the bottom. The stem projected outside and could be read. Owing to conduction of heat by the metal casing, etc., this thermometer did not give the full temperature of the atmosphere about its bulb. The highest temperature it would record at 20 pounds was 122° C. But for this investigation the relative temperatures under various conditions were sufficiently striking to demonstrate the principles involved.

The sterilizer was of the Sprague pattern, made by the Kny-Scheerer Co. It consists of an inner cylinder for the materials to be sterilized and an outer cylinder enclosing the first. The space between the two serves as the boiler, and the steam can be let into the inner one by opening a valve. The apparatus was originally provided with an ejector, the vacuum pipe of which communicated with the top of the sterilizing-chamber. This was charged so as to draw from the bottom of the chamber.

Experiment I.—Steam at 20 pounds was let in and the pressure maintained at 20 pounds. At the end of 5 minutes the thermometer stood at 96½° C. At the end of 30 minutes it had reached only 104° C. I then opened an air-cock at the bottom of the sterilizer and let all the air out. In 3 minutes all the air had been expelled and the air-cock was closed. The pressure had fallen to 10 pounds and yet the mercury had risen from 7½° to 11½° C. The pressure was than allowed to rise to 20 pounds, which it did in 8 minutes. The mercury then stood at 122° C. I measured the air which was blown off through the cock, and it was much less than one-half the capacity of the sterilizer. Unless so much had escaped by leaks in the sterilizer the temperature would probably not have reached even 104° C. in the 30 minutes.

Experiment II.—The air was got rid of as quickly as possible. With the pressure at 20 pounds in the sterilizer the air-cock at the bottom was opened till all air was expelled. This took 5 minutes. The air-cock was then closed, and the pressure allowed to rise to 20 pounds, when the mercury stood at 122° C. The time occupied in the whole process of raising the temperature to 122° C. was 8½ minutes. In the last experiment with the air left in it took 30 minutes to reach 104° F.

Experiment III.—This was to test the efficiency of the ejector in getting rid of the air. With the steam at 20½ pounds the ejector was turned on and left till the pressure had sunk to below 20 pounds. This was repeated six times. It took 6 minutes. The steam was then let into the sterilizing-chamber and the pressure maintained at 20 pounds. At the end of 12 minutes from the beginning of the ejection the mercury stood at 10° C. At the end of 20 minutes it had reached only 104⅓° C. The air was let out and was found to be about 2½ liters.

The temperature quickly ran up as in the previous experiments as soon as the air was all expelled.

I used the following method for determining when the air was all out: To the air-cock I attached a tube and carried its end beneath water. As long as there was much air being expelled it would bubble up briskly. As the air became nearly exhausted the bubbles would shrink to a small size on leaving the tube, being mostly steam. When the air was practically out the bubbles became almost invisible, and a water-hammer was established, making a noise like the explosion of a bunch of firecrackers. This seems to me an exceedingly simple, striking, and accurate method of determining when the air is all out of a pressure-sterilizer.

My experiments with the pressure-sterilizer show that a pressure of 20 pounds above the 15 pounds of the atmosphere gives no assurance of a high temperature at the bottom of the sterilizer unless the air is expelled. The method of exhausting the air by an ejector before the steam is let in is doubly feeble, for, in the first place, it will take out only a portion of the air, and in the second place, as soon as a partial vacuum is produced more air will be sucked in through the leaks which always exist in such an apparatus. The methods which get rid of the air by progressive dilution are very slow. The quickest method is also the simplest—merely to let the steam enter at the very top, the air flow out at the very bottom and bubble up through water. As soon as a sharp water-hammer, with very minute bubbles, is established, the air is out for all practical purposes, and the temperature throughout the interior of the sterilizer corresponds to that of saturated steam at the pressure indicated by the gage.

THE MORE UNUSUAL FORMS OF PUERPERAL HEMORRHAGE.

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THE absolute safeguard against hemorrhage from an atonic uterus post-partum is perfect retraction and contraction of the muscular fibers of that organ. This condition can be brought about in nearly all cases by ordinary care and skill on the part of the accoucheur, and, in fact, is beautifully accomplished by unaided effort on the part of Nature in the largest number of instances. These ordinary cases of post-partum hemorrhage are entirely foreign to this paper; the attempt to be made is a recital of puerperal hemorrhages of rare origin, and in all of the cases reported the condition was a desperate one.

The history of the first case is certainly a very unique one, and was seen with the medical attendant, Dr. L. A young woman, a divorced one, found herself pregnant, and outside of her melancholic state because of her social position, enjoyed good health until five-months' pregnant. Without cause she then began to have labor pains, and was delivered in a natural manner of a fetus surrounded by an intact fruit-sac. The uterus contracted well, and the convalescence was apparently normal except for a rather profuse and prolonged bloody lochia. At the end of one week, much to the surprise of her physician and to her own chagrin, labor pains began again, and in a few hours a second fetus was expelled, and with it a macerated placenta. Her convalescence was apparently normal, except for some slight intermittent pain and a slight hemorrhage. Suddenly, *five weeks* after the birth of the second fetus, and accompanied by a very profuse hemorrhage which caused a marked anemia, *a third intact fetal sac* filled with liquor amnii was expelled. No trace of a fetus could be found. After a stormy convalescence the patient fully recovered her health. Before leaving her, a direct and thorough manual exploration was undertaken, with the idea in view of finding still another but possibly hidden fetus.

This case need not be commented upon, except that it is well to remember that pain and hemorrhage are *always* inconsistent with a normal puerperium, and when these two conditions are present a direct manual examination is always in order.

In the next case, the puerperal hemorrhage was a direct result of a traumatic insult offered an overdistended bladder eighteen hours after labor, the source of the hemorrhage being partially vesical and partially uterine.

The patient, a primipara, was seen in consultation after a normal labor. The placenta showed no disposition to expel itself, and after six hours the Credé manipulation was carried out at short intervals for twelve hours. There was constant but mild leakage of blood from the vulva. My assistance was asked for, and on my arrival a rather peculiar condition of affairs was found. The hand of the doctor was placed over a large boggy mass, the fundus of which was on a level with the umbilicus. This was the organ upon which the Credé method of expulsion had been practised, and which was soon proven to be the overdistended bladder. To the left of this tumor, its fundus reaching to the level of the ensiform cartilage, was the long-drawn-out uterus containing the placenta, which lay unaborted in its cavity. The bladder was quickly emptied of a large amount of deeply stained, bloody urine, and the placenta delivered with no trouble whatsoever. The uterus contracted well, and instantly took its position as soon as the bladder was emptied.

The lesson to be taught by this case is both instructive and valuable. A full bladder in the parturient woman can and is likely to cause as great a dystocia as a real pelvic contraction, and to my

mind it is as essential to prove the bladder empty by the catheter and not by questioning the patient or nurse, as it is essential to render the examining finger rigidly and scientifically aseptic. A woman may pass water regularly at short intervals, and yet carry a veritable reservoir in her abdomen. Note the cases of ischurie paradoxa, the incontinence of retention so characteristic of incarceration of a retroflexed, gravid uterus. To make this point even more emphatic, let me illustrate by the history of the following case actually seen by me in consultation:

A neurotic second multipara; had always menstruated regularly. Last menstruation in October; skipped her November period, and again had her flow, but yet very slight in December and January. There were present all the symptoms of pregnancy, and the patient considered herself in that condition. During the previous seven weeks she noted a rapid development of an abdominal tumor. She had had irregular temperature and rapid pulse, but otherwise had felt well. She, as well as her physician and the nurse, stated that she had been passing a large amount of urine regularly. On examining her abdomen, I saw that she had the appearance of being about seven-months' pregnant. The abdomen was filled by a tense, elastic, fluctuating mass, situated directly in the median line. No intermittent contractions so characteristic of pregnancy could be elicited. There were no fetal heart-sounds nor small parts to be noted. On vaginal examination it was difficult to introduce even one finger because of the enormous edema of the rectovaginal septum, the collateral edema evidently being due to the pressure from the tumor. The enlarged pregnant uterus was found pressed back in the hollow of the sacrum. Upon following out my invariable rule, never to fail to use the catheter, much to my astonishment the tumor slowly but surely disappeared in the form of *seven and one-half quarts* of urine. The previous diagnosis by the family doctor had been a malignant intra-abdominal growth.

Late secondary hemorrhage on the tenth day of the puerperium is a rare complication, yet in the following case an overdistended bladder, which evidently caused this bleeding, rendered the patient so exsanguinated that her life was despaired of for a number of hours.

The patient, a young primipara, was seen by me with Dr. Breitenfels of this city, after she had been in labor for a number of hours. Upon examining her I found a transverse impaction of the fetal head at the brim. Axis-traction delivery followed, and her convalescence was so uneventful that the doctor stopped his visits on the seventh day at the suggestion of the woman because she felt so well. On the tenth day so frightful a hemorrhage occurred as to give the classical picture of an acute, intense anemia. At the time of my seeing the patient with the doctor we found the fundus pulled up to a point two-fingers' breadth below the umbilicus, and drawn well to the right side of the abdomen. The bladder was found overdistended with urine, the result of a retention of thirty-six-hours' duration. This was the only abnormal condition found, and evidently caused this sudden uterine relaxation and the consequent terrific hemorrhage. When the catheter was passed the uterus was found to be small and fairly contracted, and after thoroughly washing it out the organ was packed with gauze, and measures taken to combat the desperate state of the patient. The convalescence was a very tedious one, but the woman finally recovered.

Partial retention of urine in the recently confined woman I have so very often met that certain physical signs are very characteristic. When one palpates the abdomen the uterus is always found dislocated to one side or other of the abdomen, usually the left. This dislocation is so closely associated in my experience with a partially distended bladder that notwithstanding the statements of all parties concerned, I invariably allow the use of the catheter, with the result that a considerable amount of residual urine is discovered, and upon its removal the fundus promptly moves into place behind the symphysis. On several occasions I have found the whole uterus retrodisplaced from an overdistended bladder. This position favors retention of lochia; with decomposition the condition called "lochia metra" is found with its concomitant symptoms of a true sapremia. The treatment is self-evident, being both prophylactic and curative.

The next case to report is one of very severe bleeding, occurring seventeen days after labor. This case has been reported in full in *The American Gynecological and Obstetrical Journal*, under the title of "Inversion of the Puerperal Uterus." The history is given direct from this report with the associated comments:

Attending physicians, Drs. J. McGillicuddy and Smith. A second multipara was delivered rapidly. The case ran an uneventful course except for a marked subinvolution of the uterus and a prolonged bloody lochia. The placenta and membranes had been expelled entire, and there had been no fever nor pulse-rise nor fetid lochia. When dismissed the woman still had a large uterus, the fundus of which rose well out of the pelvis. Seventeen days after labor, while at stool, the patient was seized with intense pain in the abdomen while attempting to discharge some very hard fecal masses. The passage of feces gave her severe pain, and she was compelled to use considerable expulsive effort. The pain was agonizing, of an expulsive character, situated in the lower abdomen. A very severe hemorrhage occurred, and this, with the increasing bearing-down pain, caused her to faint. She was put to bed, and her physician hurriedly summoned. The symptoms were those of a very severe anemia—

alarming pallor, and a very rapid pulse. Large clots of blood were continually expelled from the vagina.

Upon making an examination, I found the abdomen very tense, but there was a cupping of the fundus about two-fingers' breadth above the symphysis. A number of clots were found in the vagina, and high up in the canal there was a friable, soft mass, about the size of a closed fist, protruding through the os, and tightly embraced by the cervix. At first this mass appeared to be the fundus, partially inverted, but on more careful examination it was thought that there could be traced upward from the mass a very broad pedicle. Further and closer examination could not be made on account of the bad general condition of the patient, who now had a running, almost imperceptible pulse. Examination and operative treatment was postponed twelve hours with the hope that the patient might react. The entire vagina was tightly tamponed with gauze, and repeated enemata of salt water and strychnin were ordered. At the next examination it was found that the patient had reacted nicely. There was no further hemorrhage; the pulse was 110, and very good. Ether narcosis; tampon removed. The vaginal tumor proved to be an organized fibrous placental polyp, about the size of a goose-egg, attached by a long and broad pedicle to the right lateral uterine wall and fundus. In delivering itself it had partially inverted the fundus and corresponding lateral wall of the uterus. Its attachments were readily peeled off with the fingers, the growth delivered, and the uterus and vagina tamponed with gauze. The patient died some weeks after the operation, but the cause of death is unknown.

My remarks at the time the report of this case was made were pertinent, and I think timely, and will bear repetition now: "The cause of the tumor's formation was probably either from a placental rest, or, what is more probable, from a "placenta succenturiata." The only symptoms which should have made the physician suspicious were the subinvoluted uterus and the prolonged bloody lochia. Either one or the other of these symptoms is sufficient to warrant the medical man in insisting upon a physical exploration of the uterus, when the presence of secundines would have been discovered and removed. As a rule, when placental or membrane tissue remains behind, no trouble need be anticipated, providing we are reasonably sure of our asepsis. I cannot agree with those who will insist upon entering every peurperal uterus when there is a suspicion that a small piece of placenta or membrane remains behind, for it is known that in a majority of cases these are expelled spontaneously or can be washed away or otherwise artificially removed when the occasion demanding their removal arises. The indications for their removal need not be a fetid lochia nor a temperature nor a rapid pulse, which symptom-complex is usually associated with a sapremia, but a severe degree of after-pains, persistent especially when ergot is not given, *in a primipara*, after-pains being most suspicious. A subinvoluted uterus and a persistent bloody lochia is quite enough evidence to the careful observer to demand an exploration."

In the following we had to deal with an enormous vulvovaginal hematoma, one of colossal dimensions, the largest ever coming under my observation.

The patient was a young primipara, a typical scorbutic, but only so since becoming pregnant. Her body was covered with old and new ecchymotic areas, and the gums were swollen, reddened, and bleeding. She had a perfectly normal labor, and was delivered readily by means of the low forceps. There was no unusual bleeding, and it was hoped that no complication would occur. She was carefully watched by the house-surgeon, who noted a very gradual growing anemia. The patient complained of decided pressure symptoms in the lower vaginal tract. Tentative treatment being of no avail, I was notified.

The examination revealed the right labium majus, the external genitals, gluteal and perineal region to be the site of an enormous blue-red tumor the size of a fetal head, and evidently on the point of rupturing. This hemorrhagic condition extended around the rectum up the right vaginal wall into the corresponding broad ligament. There was no uterine rupture. The patient was in a condition of profound collapse, and was alarmingly white. Nevertheless, under a careful A. C. E. narcosis the vulva was laid completely open, and a large amount of clotted blood removed. The cavity exposed, which was an enormous one, was thoroughly irrigated. The size of the cavity can be best judged of when forty-two yards of two-inch gauze was required to pack it. While on the table the patient received one pint of salt-solution under each breast, which materially improved the volume of her pulse. During the same night she suddenly developed an acute edema of the lungs, for which 2½ grains of camphor in oil was given every twenty minutes under the skin, and this with inhalation of oxygen and cupping caused this very grave condition to disappear. The cause of this sudden pulmonary edema was evidently due to diffuse pulmonary emboli, because in forty-eight hours the patient developed disseminated areas of consolidation throughout both lungs, the so-called embolic pneumonia. She made a clean though slow convalescence, only to die some months after from an acute general tuberculosis.

The occurrence of a scorbutic condition during pregnancy was the only one of the numerous interesting features of this case to be discussed, and this because of its rarity. It seems hardly possible to account for its direct occurrence, since it is known that the coagulating properties of the blood are materially increased during pregnancy, the so-called

"hyperinosis of pregnancy." For this reason the impoverishment of the blood is certainly overbalanced by this hyperinotic condition, and the increased thickness of the whole vascular system due to its physiologic hypertrophy. An interesting question arising is the following: Are we justified in advising the induction of premature labor in patients of a hemorrhagic tendency? For this indication, pure and simple, I think not, for the only complication to be feared is hemorrhage, and this, uterine, and post-partum. This certainly is as readily controlled at term as at a much earlier period, since in the tampon we have a method for checking uterine hemorrhage that rarely fails us. But in certain of these cases I can readily see that the induction of premature labor is not only justifiable but sincerely to be wished for—cases in which there is associated a profound condition of anemia. This I have met with once, but my wish to induce labor was overruled by the patient and a prominent gynecologist whom the patient saw unknown to me. Yet to-day, in looking back at the case, I am happy that the patient proved disloyal to me and followed the wish and advice of the other practitioner, for four weeks later she died suddenly, probably from a cardiac thrombosis. Had I operated upon her under narcosis what would have been the result of the operation? I think death, for I believe it is Olshausen who says: "Do what you will medically or surgically, these malignant blood cases die whether delivered or not."

The next case to be reported belongs, I think, to the category of the cases just discussed, although we could elicit no history of hemophilia either before or during pregnancy, but the patient died from a general vulvo-vagino-uterine hemorrhage which was not to be checked by any means short of tying the uterine arteries, and this even was problematic.

An eight multipara, seen with Drs. L. L. Bradshaw and Palmer. Because of a partial placenta previa the attending physicians performed a careful manual dilatation of the uterus and succeeded in a few minutes. Then the trouble began, for the patient began to bleed in a furious fashion and in a short time was profoundly anemic. It was impossible to determine where the bleeding came from, for it did seem that all parts of that woman's genital tract leaked blood. The uterus was firmly packed with gauze to the fullest degree; then the cervix bled profusely. It was completely closed over the tampon, the whole canal being occluded. The vagina now bled furiously. Firm tamponade, pressure, hot and cold water, styptics, iron, alum, etc., did no good. Large circular sutures were now passed, including all the parts of the vagina. This stopped the bleeding which we hoped to control, but the needle-punctures bled worse than the original points. Over these again the firm tampon was used, which we found evidently checked the hemorrhage. But the bleeding ceased because the patient had no more blood to lose; she was deeply and profoundly collapsed. Intravenous transfusion was now practised, but the increased vascular pressure brought about by the infusion started the vagina to bleeding again and in a short time the patient was dead. The attempt to tie the uterine arteries was thought of, but the fear of additional shock to the patient stayed our hands from attempting it. Pressure on the aorta was not used since its pulsation could hardly be felt, and further, because the hemorrhage was as much venous as arterial. Everything that mortal being could do was done; and yet we felt that the patient was slowly but surely slipping away from us. I shall never forget the impression made on my mind by this case, for it was the most desperate and sorrowful one I hope ever to meet. This patient was placed in a modified Trendelenburg position (inverted chair) and I think this was a mistake. True, it relieved temporarily the acute anemia of the brain, but while we thought we had the hemorrhage controlled we did so because we did not see the blood. Because of the position none appeared to escape from the vulva; it simply followed the law of gravity and gravitated into the cul-de-sac until it was too full to hold any more and then it percolated through the gauze and escaped from the vagina.

The next and last case to be reported in this paper is one of fatal secondary hemorrhage from a lacerated cervix.

Multipara: three children. Family and personal history, present and past, good. History of previous pregnancies, labors, and puerperia normal. Went into labor at the end of pregnancy. Examination at beginning of labor revealed a deeply lacerated cervix with a breech presenting. Child born practically spontaneously, the whole labor lasting ten hours. After the birth of the child there was considerable hemorrhage from the uterus, for which the whole uterovaginal tract was tamponed with sterilized gauze. There was noted at the time a laceration of the cervix, but the source of hemorrhage was thought to be due to an atonic uterus. The packing perfectly controlled the bleeding. The patient was very much weakened but rallied nicely and began to improve. As is our custom at the hospital, the gauze was removed on the third day. At once, following this, came a very profuse arterial hemorrhage. The whole canal was instantly repacked, but in spite of all measures the patient was dead in one hour from the time the packing was removed. This alone would show how profuse was the bleeding, but the autopsy, performed the following day, threw some light and much interesting information on the case. It showed the futility and danger of packing in cases of cervical hemorrhage. The right side of the cervix was torn past the internal os and into the broad ligament. The whole cellular tissue was infiltrated and suffused by the enormous concealed hemorrhage, stripping up

the cellular tissue, retroperitoneally, right up to the right kidney region, and touching the lower border of that organ. There is no doubt in my mind that the firm vaginal packing simply concealed the hemorrhage, which had been going on quietly during the three days following the labor. Having no external escape the blood was dammed back into the retroperitoneal tissue, and thus was diffused where the autopsy revealed it. The liberation of the gauze simply started up the severe external, visible hemorrhage, and this, combined with the concealed hemorrhage, was sufficient to cause so rapid a lethal result.

The lessons taught by this case are certainly pointed ones, showing the harmfulness and futility of uterovaginal tamponade in cases other than atony of the uterus. In cases of atony, there is no firmer and stancher believer in the regularly applied uterine tamponade than I; I have never noted a failure from its use, and always use this means in every case of uterine hemorrhage when one hot intra-uterine douche fails, and for this purpose always have constantly in my obstetric satchel ten yards of sterilized gauze five inches wide, tightly packed in a very small tube. Otherwise is it in cases of hemorrhage from the cervix. Here and here only do I find the legitimate indication for the use of suture and needle. I do not understand the utility of a primary cervical operation simply because of a cervical tear deep or otherwise so long as there be no hemorrhage. My reasons have been frequently stated, but in short they are these: If the accoucheur has been surgically clean all tears will as a rule heal without trouble. If sutures are applied, and asepsis has not been rigid, sepsis is likely to follow, and either the stitches must be removed, or, if not, union will not take place. Therefore, only in the presence of cervical hemorrhage is the primary operation countenanced.

A RESUME OF MY EXPERIENCE IN INTERNAL ANTERIOR URETHROTOMY.

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DURING my term of service as resident surgeon in the New York Charity Hospital many years ago, I had the then unappreciated good fortune to serve under Dr. Fessenden N. Otis, whose original work in genito-urinary surgery has put the practice of American surgeons in that branch of surgical science far in advance of that of any other country in the world. My hospital opportunities for the study of genito-urinary disease, particularly in the direction of operative surgery upon the urethra, were excellent, but being prejudiced not only by the established traditions of the medical profession, but also by the opinions and teachings of my lamented friend, the late Henry B. Sands, who, as is well known, was opposed to Otis and his methods, I did not accept Otis' views until some time after entering private practice. Increasing experience then demonstated to me not only the inefficacy of all the time-honored methods of treatment of chronic urethral disease, but the soundness of Otis' views and the scientific accuracy of his technic, and I began practising the Otis method. Further and extensive experience has demonstrated to me its value and has convinced me that Otis' views as originally presented were in the main sound and that his ideas upon the relation of stricture, particularly of large caliber, to chronic inflammation of the urethral mucous membrane and to various reflex disturbances in different portions of the genito-urinary tract, or even remote nervous disturbances, were correct.

My internal urethrotomies of all degrees of importance have numbered something over 1500, and it is with a firm conviction of the value of the operation, born of this moderately extensive experience, that I present the conclusions embraced in this short paper.

The Value of the Operation of Internal Urethrotomy in Chronic Urethral Discharges.—There are several conditions of the urethral mucous membrane and sub-lying tissues incidental to localized chronic inflammation which, in my opinion, cannot be successfully treated except by the radical operation of dilating urethrotomy. I will state in this connection that I do not advocate urethrotomy in any case save those in which a thorough trial has proved the inefficacy of such methods of treatment as gradual dilatation, or local applications of various kinds by means of the endoscope and deep urethral syringe, or in cases in which a distinct coarctation of the canal is present of a character which experience has demonstrated to be incurable by any other method of treatment than division with the urethrotome.

There is a general impression to the effect that urethrotomy is never indicated save in cases of extreme urethral contraction. In cases of this kind my experience has shown that when it is possible to do so, it is best to begin treatment by dilatation and to continue it to the end, providing the coarctations show a disposition to yield. Urethrotomy is attended by best results when the necessary incisions are shallow. In cases in which there is extensive contraction of the urethra, however, the wound necessitated by thorough division of the coarctation is necessarily extensive. Subsequent cicatricial contraction is proportionately great; the interference with the circulation and possibly interference with

the functional capacity of the organ involved is also proportionately great. There are many instances in which endoscopic applications, deep injections, and dilatation by means of sounds or other contrivances absolutely fail to relieve chronic urethral discharges, and careful examination shows that while the entire circumference of the urethra is not involved in stricture, there exists at one or more points in the pendulous portion of the canal thickened, infiltrated, and hyperplastic areas that limit the distensibility and impair the elasticity of that portion of the canal.

These parts are sensitive to the contact of the passing urine and instruments, and induce at the point of the canal in which they are situated more or less spasmodic obstruction, with consequent friction. The involved part of the canal is never at rest, and in a large proportion of cases, I know of no means of putting it at rest and bringing about resolution and cure other than division of the stricture and inelastic area. The alterative effect, if you please, or better perhaps, the local depletion or improvement in the process of healing incidental to the incision has much to do with the cure of the localized inflammation, and with the cure of the localized inflammation the discharge usually ceases. Strictures of large caliber, involving the entire circumference of the canal, are in my opinion rarely cured, even though the symptoms dependent upon them apparently disappear, by any other method of treatment than internal urethrotomy. I am well aware that something of a reaction is in progress against the views of Otis with reference to this particular type of stricture. This reaction is not to be wondered at, considering the erroneous teachings of some of our text-book authors who dwell upon this subject. The non-surgical surgeons, who, while enacting the more fitting rôle of dermatologists, at the same time affect genito-urinary surgery have imparted some erroneous ideas to the profession on this subject. I have in mind two recent text-books, in one of which the assertion is made that any urethra that will admit a No. 26, French, sound cannot possibly be open to impeachment on the ground of stricture, much less should it be operated upon, a caliber of 26 being amply sufficient. In the other it is stated that the extreme capacity of the urethra is 30 or possibly 31, French. That these estimates are inaccurate and are not the result of personal observation in the performance of urethrotomy I am firmly convinced. I firmly believe that in a hundred individuals, taken at random—providing they have had no urethral disease whatever—the caliber of the urethra will average 35, French. The range of caliber between this average and 26, or even 30, is considerable, and anywhere between these limits a stricture of large caliber is perfectly capable of producing urethral discharge and other symptoms characteristic of chronic urethral inflammation, which will not yield until the diseased area is divided by the urethrotome. I have myself operated in cases in which the caliber of the stricture was 35 and upwards, and in two cases I restored the urethra to a size that permanently admitted a 45 bulb.

Prognosis of the Operation as Regards Cure.—I know of no disease demanding surgical methods of relief which has been judged so unfairly as stricture of the urethra in its relations to chronic urethral discharges. It is apparently demanded by non-surgical genito-urinary surgeons that internal urethrotomy should be successful in every case of chronic urethral discharge in order that its value may be proven. I do not know of any other disease susceptible of surgical interference in which so arbitrary and unreasonable a demand is made. A few uncured gleets out of a large number of cases in which urethrotomy is practised for their cure is apparently sufficient to excite a vociferous howl on the part of the anti-urethrotomists. It is not claimed by intelligent urethrotomists that the operation cures in every instance, nor is proof of such a claim necessary to establish its value. As far as my own experience goes I have found that in quite a large proportion of cases of stricture of large caliber, with associated and dependent gleet, a cure is accomplished by urethrotomy. I have found, furthermore, that cure without urethrotomy, while perhaps not impossible in all cases, appears to be impracticable in very many of them. In cases in which strictures of large caliber exist there is danger of deep seated urinary infection in portions of the canal more important and vital than that primarily affected by the stricture. This danger may be removed in many cases by urethrotomy, even though the gleet dependent upon the stricture is not cured. Chronic inflammation of the urethra involves infection and chronic inflammation of the urethral glands and follicles; they are not always accessible, and chronic inflammation, with a discharge dependent upon urethral catarrh, may exist indefinitely even after the original cause—stricture of greater or less caliber—has been removed. Recurrent attacks of inflammation of the prostate and bladder, with marked perturbation of the function of micturition, are often dependent upon strictures of large caliber in which there is little or no apparent obstruction although evident continuous infection exists. This condition of affairs may exist even though there may be no external discharge from the urethra. Such conditions are, however, frequently relieved with astonishing rapidity by the operation of urethrotomy. Frequent

diurnal and nocturnal micturition of a purely reflex character, incidental to strictures of large caliber, is quite frequent. Many such patients coming under my observation have been treated for a prolonged period under the supposition that the disturbance of the function of micturition depended upon inflammation of the prostate and bladder, despite the fact that the urine showed no evidences of inflammation of the mucous membrane of the genito-urinary tract, and no urethral discharge existed. In many such cases the relief afforded by an internal urethrotomy has been surprisingly prompt and permanent. Many cases have come under my observation in which recurrent attacks of epididymitis dependent upon strictures of large caliber in the pendulous portion of the urethra occurred from time to time, and proved absolutely resistant to treatment until internal urethrotomy had been performed. In such cases there is obstruction of the pendulous urethra with coincidental imperfect drainage and constant infection that can only be relieved by operation.

Prognosis as Regards Untoward Results.—A great deal has been said by the opponents of internal urethrotomy regarding the evil results supposed to accrue from the operation. With respect to this point, it is a difficult matter to estimate the true status of the operation. The operation of internal urethrotomy performed by one surgeon may be as different from the same operation performed by another as an operation of a totally different character would be. I know of no field in surgery that requires more careful discrimination of cases, nor riper judgment born of experience as to indications for and limitations of the operation than internal urethrotomy. My experience has demonstrated to my own satisfaction that this operation is rarely followed by untoward results when properly performed. The proportion of disagreeable results is so small as to have very little weight in the balance with the beneficial effects of the procedure. Dribbling of urine as a consequence of interference with the continuous wave of contraction of the accelerator urinæ muscle characterizing the finale of micturition is, it must be confessed, an occasional result of the urethrotomy cicatrix. This is sometimes productive of considerable inconvenience, rarely more so, however, than is the stricture for which the operation was practised.

Continuance of urethral discharge is by no means unusual even after a skilful operation for stricture. It must be remembered that this continuance of discharge may be dependent upon the fact that the operation of internal urethrotomy has been so long deferred that secondary conditions of an incurable character have developed, which continue after the removal of the original source of the difficulty. Again, the urethrotomy might not have been properly performed, and one or more bands may still remain in the urethra and perpetuate a chronic inflammation behind them, with coincident gleety discharge.

Pseudo-impotency, although rare, is met with sufficiently often after internal urethrotomy to demand consideration. When it does occur the patient usually believes that some nerve, as he expresses it, has been divided, with resultant loss of the function of the organ. Obviously a proper urethrotomy incision can in no possible manner by interference with the nerve-supply of the organ produce such a result. That extensive cicatricial contraction, adhesion, and inflammatory deposit at the site of the urethrotomy and about it may produce interference with the circulation to such an extent as to impair its erectile function, is admitted. This, however, is rare, and if all obstructions and sources of irritation have been removed resolution usually occurs in time. Impotency following urethrotomy under ordinary circumstances is of the pseudo type and due to psychic perturbation, being, therefore, susceptible only to remedies producing a psychic counter impression.

Permanent chordee following internal urethrotomy is occasionally met with. It is due to extensive cicatricial contraction following more or less diffuse inflammation in the vicinity of the urethrotomy wound. The mechanical condition upon which it depends is a glueing together, so to speak, of the planes of areolar tissue underlying the mucous membrane upon the roof of the urethra, because of which they do not glide upon one another as they should do during the variations of the size of the organ, incidental to a fluctuating blood-supply in the erection. I have not seen more than two or three cases of permanent curvature of the penis as a result of internal urethrotomy, and even in these apparently permanent cases I have been somewhat in doubt as to the final outcome, having lost track of them after a variable length of time. My experience goes to show that the curvature yields more rapidly in cases in which the patient indulges in sexual intercourse within a reasonable period after the performance of the operation. The active performance of the erectile function of the urethra seems to break up adhesions and promote a return to the normal circulation of the parts. As already intimated, a few permanently disagreeable results should not be permitted to be weighed in the balance with the multitudinous cases in which the operation is followed by successful results without disagreeable sequelæ or complications.

Immediate Results of the Operation.—The condition most likely to give the surgeon annoyance is, in my experience, urethral hemorrhage. Occasionally this is quite severe, rarely dangerous. In cases of hemophilia the danger would, of course, be especially marked, but such cases are very rare. I have found that careful, firm bandaging of the penis from the meatus to the root of the organ is usually effective in checking hemorrhage. By the time the patient is called upon to urinate permanent hemostasis has usually occurred. In cases of annoying hemorrhage following internal urethrotomy I have found emulsion of turpentine, ten minims to the dram, administered every two or three hours, to act moderately well. Turpentine is much more efficacious and reliable than ergot and its congeners. This much may be said with reference to the question of hemorrhage, that there is no danger of serious hemorrhage when once a firm bandage has been properly applied to the penis. Severe hemorrrhage occasionally occurs after an internal urethrotomy at a time when the operation-wound might naturally be supposed to be firmly healed. Thus, I have met with one case in which severe hemorrhage came on two weeks after the operation, a week having elapsed since there was even oozing of blood from the meatus. The hemorrhage came on following a prolonged and violent erection. Experience goes to show that, as might be expected, the greater the sexual repose of the patient the less the liability to hemorrhage.

Urinary fever, so-called, has been of late years the rarest of occurrences in my urethral surgical work. I attribute this to as nearly perfect asepsis as is compatible with the nature and function of the urethra, and to the asepsis of the urine maintained by the administration of oil of eucalyptus internally. Even a slight chill is a very rare phenomenon in my urethral cases at the present time. Other remedies are efficacious, none so much so, however, as the oil of eucalyptus. In a general way, I am prepared to state that the danger of urethral fever is directly proportionate to the frequency and roughness with which the urethra is tampered with by instrumentation after the operation. In by far the larger proportion of cases the introduction of sounds following the operation is begun too soon. The prevalent notion seems to be that unless the urethra is speedily and frequently dilated after the operation its possible benefits will be lost. This, however, is a fallacy. I presume that in the majority of cases it is perfectly safe to defer sounding after urethrotomy for a week. It is rarely my practice to dilate sooner than the fourth or fifth day, save in the case of the meatus, which should be dilated every second day.

Prognosis as Regards Danger to Life.—It is my pleasure to state that I have thus far experienced no fatal results from the operation of internal urethrotomy. I say this simply as a fact which must be accepted upon its merits. I realize perfectly that fatal results have occurred at the hands of very competent operators, and further, that it is by no means impossible that I may at any moment have a like experience. I simply state that such a result has not as yet occurred in my experience. Proper aseptic and antiseptic precautions at the time of the operation, with careful attention to the urine, involving particularly the internal administration of remedies that have a special antiseptic effect upon that fluid, constitute the best means of avoiding serious results. That cases occasionally occur in which even this means of prevention will fail to obviate a fatal result is possible. I do not, however, think it probable. Doubtless in many of the fatal cases that have been reported the urethrotomy *per se* cannot be justly held responsible for the fatal result. It should have been properly attributed to disease of the kidneys. Like all other operations upon the genito-urinary tract involving shock, internal urethrotomy in the presence of more or less serious impairment of the kidneys, as a consequence of long-standing obstruction and urethral infection, may give rise reflexly to hyperemia of the kidney, with complete inhibition of the renal functions, which have already been seriously impaired.

Prognosis as to Permanency of Cure.—I believe that internal urethrotomy in by far the larger proportion of cases of penile stricture of the urethra effects a permanent cure. I have examined cases at intervals after operation varying from one to fifteen years in so many instances that I am convinced that my statement is correct. In a very large proportion of cases of apparent recurrence, the lack of permanency is due either to a fresh attack of the infectious inflammation or to the fact that one or more bands of stricture tissue have escaped division during the original operation.

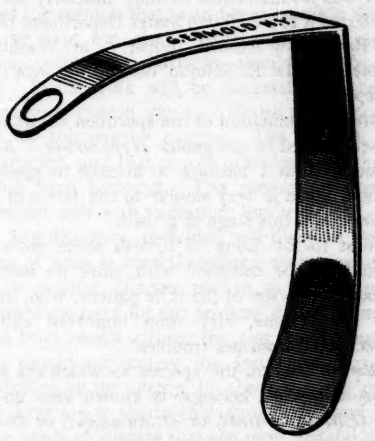
In conclusion, I will state that despite adverse criticism and the endeavor on the part of enthusiasts in endoscopy to cry down the operation of internal urethrotomy, it still remains one of our most valuable surgical procedures, and in a large number of cases of urethral disease is the only practical method of effecting a permanent cure.

Dr. Roux a Member of the French Academy of Sciences.—Dr. Roux, well known for his work on diphtheria serum, and the Assistant Director of the Pasteur Institute of Paris, has recently been elected a member of the Academie Francaise des Sciences of Paris. He succeeds to the chair left vacant some time ago by the death of M. Aimé Girard.

PHARYNGITIS AND TONSILLITIS IN INFANTS.[1]

BY HENRY DWIGHT CHAPIN, M.D.,
OF NEW YORK.

IT has seemed to the writer that many attacks of fever and illness in infants are due to a catarrhal inflammation of the throat, and that such attacks are not infrequently attributed to some other cause. The principal reason for such a possible error lies in the difficulty in getting a satisfactory view of the fauces. This is especially true in very young infants. The tongue is high and the soft palate and pillars of the fauces low down, so that it is extremely difficult to get a clear view of the parts. Unless a satisfactory view is obtained at the first attempt it becomes increasingly difficult, if not impossible, to see clearly at all. The opening is so small that a little mucus produced by the irritation of a second or third examination completely obstructs the view. In addition to this some milk is apt to be regurgitated from



Author's new tongue depressor.

the stomach and then it is absolutely impossible to see the real condition of the mucous membrane.

The writer has had such difficulty at times in satisfactorily examining the throat in young infants that he has devised a tongue depressor for this purpose (see Fig.). Most of the tongue depressors in use are not only too large but do not have the proper slant for the infant's tongue. As a result, the back of the tongue, not being properly held, arches up and obstructs the view of the fauces. The depressor here presented is small enough for the youngest infant's mouth, and is intended to curve over the tongue to the base of the epiglottis. By exercising a little pressure downward and forward the parts will come into clear view. Of course the infant should be properly held and placed before a good light. When everything is in readiness the left hand is used to steady the head while the right hand manipulates the depressor. These details will naturally suggest themselves to the careful physician but are often overlooked, with the result of unduly fretting the infant and failing in the examination.

In infants tonsillitis, as distinct from pharyngitis, is rare. The whole mucous membrane of the pharynx and tonsils is involved in the catarrhal inflammation. The tonsils may be somewhat enlarged and are covered with very fine pin-head points of a whitish exudation. These points can be recognized only when the fauces are well exposed in a good light. In rare instances the uvula is swelled and infiltrated. The secondary forms of pharyngitis seen in most infective diseases will not be here considered. The primary form is apt to be overlooked from the absence of symptoms referable to the throat, and the inability of the infant to call attention to the affected part. The swelling of the lymph-glands of the neck so often noted in diphtheria and scarlatina is not usually present in primary pharyngitis. The two most common predisposing causes of primary throat inflammation in infants are (1) disordered stomach and (2) exposure to cold. The frequent mistakes in the feeding of infants, especially overfeeding, produce an acid fermentation in the stomach. By direct continuity the mucous membrane of the pharynx and mouth may become irritated and inflamed. When the latter happens the temperature keeps up instead of subsiding when the stomach is relieved of its contents by vomiting or by their passage into the bowel. Exposure to cold is likewise a common predisposing cause. Many infants, especially among the poor, are too warmly clad, especially about the neck and chest. As a result the skin is constantly moist. Such infants live and sleep in overheated rooms. In these cases an ordinary exposure to the cold air of draughts will induce throat inflammation.

It will be noticed that the causes here given are mentioned as *predisposing*. Most, if not all, forms of tonsillar and pharyngeal inflammation are due to the presence of microbes. In health and under good hygienic conditions the mucous membrane of the throat may not be unfavorably affected by microbes, but under depressing conditions, particularly when the digestive tract is in an irritated condition, the throats of infants are vulnerable. It is quite possible that many impurities may likewise find their way to the mouth and throat by means of dirty fingers, or objects which are given to infants as toys, and which quickly find their way to the mouth.

The treatment consists in removing the cause, whether it be a deranged stomach, defective action

[1] Read before the Section on Laryngology and Rhinology of the New York Academy of Medicine, January 25, 1899.

of the skin, or faulty hygienic surroundings. The recurrence of attacks of pharyngitis in infants is the most common cause of post-nasal catarrh in children. The repeated irritation induced by these attacks causes hypertrophy of the adenoid tissue at the vault of the pharynx which is the invariable accompaniment of catarrh in the later years of childhood. Frequent irrigation of the nostrils with normal salt solution, or boracic-acid solution, should be employed in all cases in which there is a tendency toward pharyngitis in infants.

To sum up, in order to successfully examine the throat of an infant the parts must be satisfactorily seen at the first examination. By means of the tongue depressor here presented the base of the epiglottis is firmly held at the first attempt and the fauces exposed to view. Pharyngitis and tonsillitis are more common in infants than has been supposed, and are a fruitful cause not only of present discomfort but of post-nasal catarrh in children. Repeated attacks will surely cause enlargement of the adenoid tissue at the vault of the pharynx as well as of the faucial tonsils.

CLINICAL MEMORANDUM.

A CASE OF ŒSTRUS HOMINIS.

BY MAXIMILIAN HERZOG, M.D.,
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PROFESSOR OF PATHOLOGY IN THE CHICAGO POLYCLINIC.

LARVÆ of the insect order *Diptera* (flies) play quite a prominent rôle as parasites of several of our domesticated animals. On the other hand, it is quite rare, at least among civilized nations, that species of the genus *Œstrus* or *Hypoderma*, which so commonly deposit their eggs for development in the skin of cattle, sheep, and horses, select the human race as the unwilling host for their fertilized ova. A case of this kind is reported in this short communication.

Cobbold,[1] in his extensive monograph on parasites, reports a few œstrus hominis cases, some of which he has seen himself, while the others are collected from literature. Among Cobbold's list of cases we find that of the celebrated African traveler, Livingston, from whose leg a maggot, the larva of an œstrus, had been removed. This specimen is still to be found in the Hunterian Collection in London. Other cases cited by Cobbold were observed in Brazil, and other parts of South America; two cases occurred in the persons of traveling entomologists; one case in a young boy in Texas, etc. Voelkel[2] observed a case in Germany, in a young boy. The larvæ, as Leukart and Bauer thought, were those of *Hypoderma Diana*. Shimoneck[3] saw a case in an infant two weeks old. The child had been born prematurely at seven months, and when about ten days old developed swellings all over the body. These contained, as was soon discovered, the larvæ of *œstrus bovis*.

The case herein reported was observed in Duncan, Indian Territory, by Dr. D. Long, who forwarded to me, with a request for diagnosis the larvæ found, and the following history:

"December 26, 1898, a girl, four years old, had been restless and sick for several weeks with a low fever of an intermittent type, and nervous symptoms. The discharges from the bowels occasionally contained a good deal of mucus and some blood; her appetite, however, as a rule, was good. Within the last week there had developed a tenderness of the abdomen, and a slight enlargement over the right lobe of the liver. Two days ago there appeared on the right side, between the ninth and tenth rib, a small, red spot, which developed into a vesicle or pustule. On opening the later a living parasite was found protruding from the skin. The maggot was carefully removed with a pair of small forceps, and placed in a preserving fluid."

Since I was myself unable to fully indentify the insect larva I referred it to the United States Department of Agriculture, Bureau of Animal Industry, at Washington, whose chief, Dr. D. E. Salmon, obliged me with the following report:

"A careful examination of the specimen shows it to be very closely related to the genus *Hypoderma*. As it is a very young form I hesitate to attempt its specific determination, but it is very similar to the larvæ of *Hypoderma lineata* at this stage of growth."

A request to Dr. Long to furnish some more of the larvæ could not be complied with, since no more were found upon the person of the little patient, who, after the removal of the one, very soon improved and completely recovered from her troubles.

Hypoderma lineata, the species to which the parasite found, as it appears, belongs, is known also under the name of *Œstrus hominis*, or *O. humanus*, or *Dermatobia noxialis;* in common English as the gad- or bot-fly.

[1] Cobbold, "Parasites," etc., London, 1879.
[2] Voelkel, "Fall von Œstrus hominis," *Berl. klin. Wochenschr.*, p. 209, 1883.
[3] Shimoneck, "Larvæ of Œstrus bovis," etc., *Northwestern Lancet*, p. 62, 1884.

SPECIAL ARTICLE.

THE GARRISONING OF OUR TROPICAL POSSESSIONS.

No. 5.

DUTIES OF SANITARY AND ENGINEER OFFICERS.

BY SENECA EGBERT, M.D.,
OF PHILADELPHIA;
PROFESSOR OF HYGIENE AND DEAN OF THE MEDICAL FACULTY IN THE MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.

HAVING indicated in former articles the dangers that beset our troops in Cuba, it is fitting that the means of guarding against these should now be positively and emphatically declared. Some may, perhaps, feel that I have drawn a picture too somber in tone and magnified the perils that are so full of menace, but all who have read Mr. Hill's paper in the January *Forum*, entitled "Colonel Waring on the Sanitation of Havana," must have been impressed by this paragraph:

"If Havana in its present condition were suddenly peopled with men from our Northern and Western States, the results would probably be as follows: The general death-rate would be very much higher than at present; the proportion of deaths from dysentery would decrease somewhat because of our cleanliness and better dietetic habits; the proportion of deaths from typhoid fever would increase considerably; while malaria and yellow fever would claim scores of victims for every one they gain now."

And though it is encouraging and reassuring to learn that, under General Ludlow's administration, the death-rate of Havana for the past month shows a marked decrease, we must all realize that it is still excessively high, that the fatal conditions and causes still prevail, that many of our soldiers are now in Cuba, and that within three months the seasonal changes will almost surely tend to verify the above prediction.

What, then, may be done to protect our men? At this distance we cannot presume to know or to dictate as to the military or administrative exigencies, but we are firmly of the opinion that in so far as possible the troops should be kept out of the large cities, and, especially, that their camps and barracks should not be located therein. Police work will be distasteful to them, and there seems no reason why such duties should not be performed by trustworthy natives. The Spanish soldiers have departed, and that source of irritation to the public peace has been removed. The population accept our presence not only with toleration but with real friendliness. Any disorders, therefore, will likely be not much in excess of what is normal to large cities, and will not be due to popular distrust nor to a general uprising. Any immediate need for our soldiers could promptly be supplied from camps without the city walls; but, above all, they should *not* occupy the forts and barracks so lately vacated by the enemy, for there is every probability that these are so thoroughly impregnated and infected with the seeds of disease that the most careful disinfection and sanitation could not ensure safety to unacclimatized occupants for a long time to come.

In fact, if the statements are true which Colonel Waring had undoubtedly prepared for his report to the Government, every day that a soldier spends in Havana increases his risk of infection, and this particularly as the wet and warm weather approaches. The selection of the camp-sites must be made with care. They should be as elevated as possible, and far removed both from marshes and lowlands, which are the breeding-place of the various malarial organisms, and from all filth-deposits and drainage-outlets of the city.

The soil should be porous and free from rank vegetation. Artificial should supplement natural drainage whenever necessary, and the level of the subsoil water should be lowered as much as possible. Moreover, this soil-water should not be the drainage from higher elevations, nor should barracks be located in or too near ravines, as it is known that malaria is often carried up the latter by the wind. Some shade-trees about the buildings may not be objectionable, but too many will interfere with the free movement of air and access of sunlight necessary for health.

Of course, these camp-sites must be such as may have a plentiful supply of good water, and every precaution must be taken to prevent this from being contaminated at any point from its source until it reaches the camp and its consumers. Though yellow fever is not often transmitted thereby, we must never forget that water is the customary carrier of the germs of typhoid fever and dysentery, and not rarely of malaria, all three of which are only to be less feared in this country than the first mentioned.

Fortunately, Havana has an excellent and abundant water-supply, and so, I believe, have most of the other larger Cuban cities. Camps in their vicinity should not, therefore, be at a loss to secure a sufficiency for every need.

Should it be necessary or be deemed wise to locate even a small garrison within the city limits, the location of its quarters should be made with forethought and judgment. Any existing buildings would better be completely torn down, all accumulations of filth and sewage thoroughly disinfected and removed, and the soil well under-drained. Barracks and other necessary buildings can then be erected and occupied with far less risk than will be had in any preexisting structures.

In the construction of the various buildings necessary for a garrison or camp of occupation, circumstances must govern many things and features. However, much may be learned from the experience that Great Britain has had in her various colonies, and we may adopt some of her lessons without hesitation or question.

She has found that it never pays to overcrowd, that there must be no interference with the free access of sunlight and air, and also that the buildings should be detached from one another, and best of not more than two stories in height. To this I would add that in Cuba it will probably always be well to have them considerably elevated above the ground to allow a free circulation of air beneath them, aiming in this way to promote dryness of both floor and soil, and to thus prevent the development and transmission of malarial diseases. A height of eight or ten feet above the ground will not be too much, and there should always be room enough, at least, to allow of thorough cleaning. All construction work of this kind must be done with thoroughness and with an idea of permanence, for it is in this way only that the best sanitary results can be obtained.

It will be noticed that it is assumed that barracks will be constructed at each camp-site. It is true that the exigencies of the situation may necessitate for a time and at certain places encampment under canvas, but this should be avoided wherever and whenever possible on account of the increased liability to malaria induced by sleeping so near the ground.

Again, as has been stated, no one now knows how long it may be necessary to maintain the garrisons in this island, and that which may seem expensive at first sight may be truly economical in the long run. Any saving of health and life in this or any other way will be repaid tenfold

financially in the reduction of the pension-list of the future. Great Britain has learned much from experience, but in spite of this the sick-rate of her Indian army, exclusive of native troops, for 1896 is by no means encouraging. From a total enrolment of officers and men numbering 70,484, there were 97,738 admissions to hospitals, or a rate of 1387.7 admissions per 1000, while the average number constantly sick per regiment was over 93, and the average sick time for each soldier exceeded one month. Can we expect to do better in Cuba? It will be only by the strictest observance and enforcement of every sanitary rule and precaution, and by increasing vigilance and care. And if we do not do better, who can measure the increase in the payment of pensions that will be demanded from the Government within the next ten years? The cost of the sanitary reformation and rehabilitation of the whole of Cuba will scarcely exceed it.

The construction of the barracks, hospitals, and other necessary buildings need present no very serious problems. As Notter says:[1] "Barracks have been in our (the British) army, and in many armies of Europe still are, a fertile source of illness and loss of service." The buildings should not be over two stories in height, and should not be designed to accommodate more than a single company of men in each. In fact, not more than one-fourth of this number, say twenty-four or twenty-five at the most, should be quartered in any one room, and each man should have ample floor- and cubic-air space. That is from fifty to sixty square feet of the former, and not less than 600 cubic feet of the latter. This means a ceiling height of at least twelve feet. The rooms should be narrow—twenty feet is wide enough—and with plenty of windows. Broad unenclosed verandas on at least one side of the house will furnish shade and give extra space and protection to the men in wet weather.

Nor should ventilation be dependent simply upon that which may be had through doors and windows. Notwithstanding the mild and equable climate of Cuba, there are times when it is quite cold, and when it is desirable to shut out the draughts and winds, and even to warm the incoming air. Special inlet and outlet flues and openings should be provided in every instance. These should not be larger than one square foot in section individually, but there should be at least one square inch for each 50 or 60 cubic feet of space, or from 10 to 12 square inches per man. This is exclusive of the chimney, which, of course, is adapted to the heating apparatus, but which should remove almost as much air per hour as the outlet flues. For heating apparatus, if any be required, it may be necessary to use stoves, but the so-called Galton or patent ventilating grates are preferable, inasmuch as they not only facilitate ventilation but warm the air before it enters the room.

These houses must not be located so near together that one will keep the sunlight from another, or that the free circulation of air will be prevented. Generally they should be built so as to expose the sides rather than ends to the prevalent winds, which, however, should not come from marshy or polluted localities.

[1] "Treatise on Hygiene," p. 918, P. Blakiston, Sons & Co.

Ample wash-rooms should be provided for each house and in connection therewith, and for these there should be a full supply of water that will allow of frequent and generous baths by all the men. To remove this water after use, a proper drainage system must be provided, whether water-closets are used for the latrines or not, in order that the soil under and about the barracks may be kept dry. But such drains should not be the same, nor should they be connected with those which are employed to drain the soil proper and to lower the level of the ground-water. Wherever possible the drainage from the wash-houses, water-closets, kitchens, and sinks should be carried to the leeward of the camp for at least three or four hundred yards, and had best be disposed of by sub-irrigation or intermittent filtration.

Whether the latrines would better be supplied with water- or with earth-closets is a matter of judgment depending upon several circumstances. The latter are often preferable and safer, provided proper supervision and good service in caring for them can be had. This means that the contents must be removed daily, and covered in trenches sufficiently deep with clean, dry, and absorbent earth. The latrines must be located in buildings separate from the barracks, but may be connected therewith by covered and well-ventilated passage-ways. They must always be kept scrupulously clean. For permanent barracks such as described the ordinary latrines of temporary camps are, of course, not to be considered.

Should the term of our military occupation prove a long one, the advisability of increasing the proportion of married men in the garrisons must be considered. Any such increase with the consequent presence of their families will demand the construction of separate quarters for them, the best type of the latter being low, one- or two-storied buildings, having suites of two or three rooms for each family. It goes without saying that the ventilation, water-supply, drainage, etc., of these must be as complete and satisfactory as the same features in the ordinary barracks.

So also with relation to all the other buildings belonging to the camp or site, such as officers' quarters, guard-house, storerooms, quartermasters' and commissary department, etc. In fact, the whole constitutes a community in which the sanitary provisions, apparatus, and regulations should be as complete and as carefully guarded and observed as in the most Utopian of settlements.

Involved in this must be the instruction of every individual not only in the observance of such regulations, but in the reasons for them, and his education in these matters should continue until he is convinced that his safety is absolutely dependent upon them.

The kitchen and mess-halls should not be in connection with any of the barracks or other quarters directly, but should be located conveniently to them. Here, also, thorough cleanliness and good ventilation should be had, and special precautions taken to prevent any infection or deterioration of any article of the food-supply. The best and safest disposal of the garbage will be by burning, and special cremation-apparatus for this purpose should be provided and used.

As in every model community, the hospitals and adjunct buildings must be located at a safe distance from the rest of the camp, and all unnecessary intercourse with the former must be prohibited. This is especially imperative in times of epidemics, for, besides the increased risk of infection, there is always the danger that the knowledge of many cases in camp may produce, on the one hand, reckless agnosticism and carelessness as to sanitary precautions, and, on the other, panic in the minds of the men. Likewise, the same rules of construction are to be observed here as elsewhere, though a larger amount than usual of cubic space per patient should be provided in the wards, inasmuch as Cuba is tropical in climate. Fifteen hundred or 1600 cubic feet per capita is by no means too great an allowance for ordinary circumstances. The wards should be designed to accommodate ordinarily not more than twenty-four men, but the whole hospital system should be capable of considerable expansion in times of emergency. The three essentials—perfect ventilation, plenty of sunlight, and convenience and efficiency of administration—should be kept foremost in mind in the building. Elevation above the ground is even more essential here than in the case of the barracks. Moreover, the arrangement of wards should permit of the total separation of patients having different infectious diseases, and isolated wards or barracks should also be provided for the detention of suspected cases. Another necessity is a complete disinfection-plant for the treatment of clothing and bedding.

The foregoing is an attempt to indicate the requirements of a model garrison-camp in tropical Cuba. Can we say that the establishment of such a camp would ensure the safety of all or most of its occupants, and protect them from the maladies which otherwise seem almost certain to affect them?

Undoubtedly, it would guard them in a large measure, and especially from such infection, as they most probably cannot escape by their own individual foresight and care. But, after all, a man's own safety is a matter even more intimately connected with his observance of the laws of personal hygiene, and is related to his diet, his clothing, his habits and idiosyncrasies and temperament. It is through the control of these that we can best hope to fend off the dangers that threaten so alarmingly, and it is these that we shall, therefore, next consider.

MEDICAL PROGRESS.

Sudden Death after Child-Birth.—PORAK and DURANTE (*Gaz. heb. de Med. et de Chir.*, December 22, 1898) report the sudden death of a woman who was delivered after an apparently normal labor. There was only a slight loss of blood. On the fifth day there was an elevation of temperature of two degrees. The next day it was normal. There were no other symptoms. On the ninth day while taking her breakfast the patient fell from the bed, and was picked up dead. The autopsy revealed the fact of a double uterus (which had been recognized during life), and a single kidney. The cause of death was found to be a large embolus in one of the chief divisions of the pulmonary artery. This embolus had come from the right hypogastric vein, where there was a slight endophlebitis and a little thrombus. In the thrombus there were numerous colonies of the colon bacillus, and it was thought that this germ was responsible for the endophlebitis and the death of the patient. Infections run a different course according to the agent which produces them. That due to the streptococcus is marked by an elevated temperature, while the colon bacillus gives a latent infection, with little or no rise of temperature.

Position and Size of the Adult Stomach.—ROSENFELD (*Centralbl. f. Inner. Med.*, Jan. 7, 1899) asserts that the adult stomach when empty occupies an almost vertical position, and with the exception of its pyloric portion lies wholly to the left of the vertebral column. Its shape is that of a large reversed C. When it fills with food it swings more to the front. When the stomach becomes dilated it may retain this same position, simply lengthening, or it may assume a more horizontal position, still chiefly to the left of the vertebral column, or it may dilate, especially in its pyloric portion, in which case more of it will appear on the right side than in the other forms of dilatation. Blowing the stomach up with CO_2, or with air by means of a stomach-tube, is a most misleading procedure, as the part of the stomach which is evidently distended under such circumstances is the pyloric portion, the major portion of the organ being concealed by the ribs. Percussion and palpation are better means of investigation in certain cases. Far more exact, however, are the results obtained by the introduction of a soft catheter filled with shot. This sinks with certainty to the lowest margin of the stomach, and if the organ be then dilated with air and radiographed, a picture of the shape and position of the stomach is obtained which is absolutely reliable.

Apparatus for Exstrophy of the Female Bladder.—BAILEY (*The Clinique*, Jan. 15, 1899) mentions a case of exstrophy of the bladder which caused the patient considerable suffering as well as constant annoyance up to her thirtieth year. An operation at the ninth year had been a complete failure. Many forms of apparatus had been tried and rejected. The urine which constantly flowed from twenty-eight minute openings in the everted bladder was caught in thick underclothing which had to be changed several times a day. Still the patient pursued her occupation as a teacher. The apparatus which Bailey devised, and which proved very successful, consisted of a receptacle made of aluminum and extremely light in weight; it was forged in one piece, and made to fit tightly at the fourchette and inner part of the thighs. It was ground out to permit a space just over the multi-openings of the bladder. The top part was not allowed to touch the body, thus allowing ventilation, a fault, the patient says, which existed in every other form of apparatus that she had ever tried. The bladder itself did not at any point come in contact with the aluminum. This metal withstands the corroding and oxidation of foul urines. From the most dependent part of the receptacle a tube collected the urine in a cheap thin rubber or oiled silk or paper bag which could be thrown away after use, and

outside of this for protection was a larger rubber bag reaching nearly to the knees. The whole device was held in place by rubber tubing about the thighs and waist.

Metrorrhagia of Puberty.—CASTAN (*Centralbl. f. Gyn.*, January 14, 1899) says that in the metrorrhagia of puberty, which occurs from the thirteenth to the sixteenth years, the bleeding continues almost without interruption from one period to the next. The blood is usually bright red and flows away without pain or leucorrhea. Examination shows that the pelvic organs are normal and not tender. The bleeding is the only symptom. The author attributes it to a dyscrasia due to an intoxication, and his treatment is directed to the strengthening of the whole organism by gymnastics, baths, etc., while arsenic and remedies to overcome the constipation are administered internally.

Vaginal Cysts.—GODART (*Centralbl. f. Gyn.*, January 14, 1899) describes two cases of vaginal cyst, one of supposed embyronic origin, which at the age of twenty-one years was found reaching from the right vaginal vault to the sacro-uterine ligaments. The other patient had borne a child eleven months before she applied for treatment, and the cyst as big as a hen's egg, which protruded from the vagina like a prolapse of the cervix was thought to have its origin in a thrombus which had undergone cystic degeneration after the birth of the child.

Effect of Castration upon Women.—PFISTER (*Centralbl. f. Gyn.*, January 14, 1899) has made an extended investigation into the results of castration upon women, examining and questioning 179 patients upon whom a complete operation had been performed for diseases of the tubes and ovaries, or, in one-third of the cases, for myoma or aggravated retroversion of the uterus. The results were in accord in great measure with those of other investigators, but Pfister worked out the subject so carefully that his conclusions are well worth repeating. Menopause followed in 94.8 per cent. of all cases. It did not follow in two cases of uterus unicornis, and the conclusion seems well founded that in these instances there must have been ovarian tissue in some unusual situation which was overlooked at the operation. Irregular hemorrhage followed in twelve cases. Leaving the operations for myoma out of the question castration had a favorable influence upon leucorrhea in eighty per cent. of the patients. In a large part of the patients the desire for intercourse and the sensuous feeling remained. This he explains on the ground that the desire only is due to the distention of the Graafian follicle in the ovary while the sensuous feelings are excited by the body contact. Both of these causes exert reflex action through the lumbar cord, but it is evident that in a married woman, especially in youth, the recollection of past gratification together with the cutaneous sensation may suffice to make the sexual act practically normal for a long period after the removal of both ovaries. This is not usually the case with unmarried women, or those whose vitality has been somewhat reduced by age or long illness. These facts show that the relations of the vagina and external genitals with the uterus and ovaries are not so close as is usually supposed. In the majority of patients castration was followed by an increase in weight. This was not like the portliness which accompanies the natural cessation of the menopause, but was a rounded, more girlish plumpness. In most of the cases the relief of pain and shrinking of the tumors was satisfactory. Hysteria was rarely benefited. Ventral hernia developed in nineteen patients.

THERAPEUTIC NOTES.

Operation for the Radical Cure of Hemorrhoids.—SCHIFF (*Med. Record*, December 31, 1898) advocates the treatment of hemorrhoids in the same manner that one would treat any other pedicled tumor, that is to incise the mucous membrane around the base of each hemorrhoid, to ligate and cut short the vessels, and then to suture over their stump the edges of the mucous membrane. If the masses of hemorrhoids are too large to remove individually, they are removed in four sections, and some mucous membrane must be left between each of the portions cut away, otherwise there is nothing left to suture. In cases in which there is danger of a stricture, it is advisable to suture transversely, so that the suture line shall be parallel to the sphincter. In ordinary cases, the anterior and posterior wounds may be sutured parallel with the bowel while the lateral wounds are sutured across it. The advantages claimed for this method of operation are: (1) The patient is well in from three to five days. (2) There is less pain during convalescence than follows any of the other operations. (3) By the fourth or fifth day the patient is able to attend to his business, which is a desideratum in these cases. (4) The only difference in time in performing this operation and the clamp and cautery operation is the time consumed in suturing. (5) There is less danger of secondary hemorrhage in this operation than in Allingham's or the cautery operation.

Action of Amyl Nitrite.—WINKLER (*Centrabl. f. Inn. Med.*, December 17, 1898) learned from experiments that the inspiration of amyl nitrite in many instances is followed by a lowering of the blood pressure in the arteries, due to their dilatation, and without any insufficiency of the left ventricle. Under such circumstances the effect of the drug upon the circulation may be favorable by reducing the work of the heart. Unfortunately, this stage of its action is usually of short duration, and is soon followed by an increase of pressure in the left auricle, showing insufficiency of the left ventricle. This condition soon results in swelling and stiffness of the lungs, and edema. From these results Winkler draws the conclusion that we must look upon amyl nitrite not merely as an agent for dilating the blood-vessels, but as one which if given in large amounts acts energetically upon the heart, and often in an unfavorable way. Hence the uncertain action of the remedy in angina pectoris. In the beginning of pneumonia the drug must be employed with the greatest caution.

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SATURDAY, MARCH 4, 1899.

KIPLING'S ILLNESS.

FOR days the English-speaking people of two continents have awaited in almost breathless suspense the issue of the struggle between life and death made by the most popular genius of the end of the century. In the prime of manhood, with all his well-deserved honors falling thick upon him and the promise of a future difficult to fully appeciate, it was sad to think of him stricken down just as he had passed the threshold of his great career. The world has learned to appreciate genius in these days. It is no longer permitted that one should do the great work that is to be honored of posterity in a garret, to express its inspired message amid discouragement and then starve. The thrill of utterest sympathy that has vibrated through Humanity's great heart in two worlds at the prostration of the great young writer whose words have been a revelation to so many is a hopeful sign of the better understanding among men that these latter years are surely bringing with them.

In the midst of it all the silent unfailing forces of Nature have seemed so heartless and cruel. At a given moment it happens that the material with which is bound up the existence of the beautiful spirit whose emanations have stirred men so deeply becomes a favorable culture-ground for a little plant whose whole sphere of existence is bounded by an infinitesimal portion of almost undifferentiated protoplasm. Implantation takes place, and straightway natural forces foster the growth of the microorganism as if it were a favorite child, heartlessly, cruelly, regardless of the fact that that growth is at the expense of material that is informed by one of the brightest spirits to which the world has ever had the privilege of ministering.

Let us hope that the Purpose that runs through all the scheme has ordained the conservation to us poor mortals, for the present at least, of the poetic, truly creative spirit whose subtle magic has cast a spell over us all. We have all admired the magnificent fight he has made for life. As medical men we have been especially touched by the fact that the forces of Nature in him unmarred by wanton misuse have reacted for self-preservation in marvelous ways; that a past of pure clean living has been the basis on which good hopes of recovery could be founded when disease seemed almost inevitably about to triumph. Let us hope that the encouraging reports of Mr. Kipling's condition will be followed by others and still more favorable ones, and that he shall be spared to us and to another generation to which in the fulness of his power his words will be even more an inspiration and an illumination than they have been to us. *Ad multos annos.*

THE JENNER INSTITUTE—A CORRECTION.

OUR London contemporary, the *British Medical Journal*, after the charmingly complimentary expression that "the MEDICAL NEWS is beyond question one of the best edited medical journals in the United States," calls our attention to an error of our London correspondent in associating the name of the late Sir William Jenner with the Jenner Institute of Preventive Medicine. We blushingly make the correction after such a compliment, and feel a little bit as if our correspondent's slip might, under the circumstances, be considered a *felix culpa* since it has afforded the opportunity for such flattering words from our distinguished contemporary.

HONOR TO WHOM HONOR IS DUE.

A FEW weeks ago in chronicling the death of Sir William Jenner, the distinguished English physician,

we copied from our English contemporaries the supposed fact that Sir William had first convinced the English-speaking world of the essential difference between typhoid and typhus fever. After reading Professor Osler's address on "The Problem of Typhoid Fever in the United States," which we published last week, we feel called upon to correct this misstatement. The enviable distinction of having clearly pointed out the differential diagnostic points in these two important diseases belongs to young American physicians whose studies under their great master Louis at Paris had prepared them for clinical work of a high order. This achievement alone should make their names precious to a grateful medical posterity.

Sir William Jenner himself was only too ready to acknowledge how much he owed on the subject to such men as Gerhard, Shattuck, and Bartlett, and to recognize the fact that he was about to attempt the accomplishment among the profession in England of what these men had already done in America. When he was battling for the acceptance of the advance that had already come in American medicine, a committee had been appointed by the New York State Medical Society to still further elucidate the subject of fevers and note any clinical entities apart from those already recognized. The outcome of the investigation of that committee was, as Professor Osler notes, Flint's classical work, "Clinical Reports on Continued Fever."

"There were giants in those days," and their memory must be ever fresh among us. For their painstaking investigations, so successfully conducted amid all the discouragements to exact clinical work at that time will be an inspiration to generations to come, when American genius shall claim her place in the forefront of medical advance as she has in all the other great movements in which we have become seriously interested.

A DIAGNOSTIC TRIFLE.

"TRIFLES make perfection, but perfection is no trifle" was an expression that occurred in Sir Henry Irving's lecture on "Acting," delivered at Harvard some years ago, and had quite a vogue at the time because of its applicability to so many arts. It would seem to be nowhere more true or more apt than in the science of diagnosis.

It is a well-worn theme that errors of diagnosis are oftener due to the missing of some important link in the diagnostic chain because of hurried or negligent examination, in which some seemingly trivial and insignificant detail escapes notice, than to any lack of knowledge. Exact diagnosis is the result of careful, painstaking application of well-known principles in their utmost detail. Every smallest circumstance may be of the greatest value in coming to a correct decision in the matter and it is the capability of catching the significance of trifles that makes the successful diagnostician.

The improvements in diagnosis in our day are not the applications of new principles but the discovery of the significance of hitherto unsuspected, perhaps unnoticed, conditions. Professor Lampadarios of the University of Athens seems to have hit upon one of these diagnostic trifles. It gives promise of much significance. He has noted in a number of cases of incipient phthisis at an early stage, before bacilli in the sputa are of pathognomonic import, that there is sometimes a râle to be heard at the apex of the lung when the patient is reclining which disappears when he assumes the erect posture. He attributes this to the fact that when standing the diaphragm is principally used for respiration and the lower portions of the lungs take more part in the act than the upper portions. Especially is this true in delicate patients whose muscular development is not great and whose general condition has deteriorated. As a consequence of this, while the patient is erect there is not enough movement of the lungs to properly bring out the râles. While lying down, however, there is not the same reason for the preponderating action of the diaphragm, and, moreover, certain accessory muscles of respiration not vigorously employed in the erect posture have better points of support while the patient is lying down.

These cases of suspected incipient tuberculosis are usually ambulatory. When they come to the doctor's notice the patients are ordinarily examined standing. Professor Lampadarios' experience seems to show that it is possible under these circumstances to miss the very early signs of pulmonary tuberculosis. As the success of therapeutics in the disease depends very largely on early diagnosis and every day is of importance in the matter the significance of the announcement becomes apparent. It has always been

recommended to examine patients suffering from pleurisy or heart disease in the recumbent position; it would seem now that patients with incipient phthisis will have to be treated in the same manner.

PHYSICIANS ON A STRIKE.

IN Germany last fall there was presented the unusual spectacle of a "strike" among physicians. That university graduates should resort to a means of maintaining their rights which has hitherto been the weapon of those who labor with their hands, has excited no little criticism. To understand the condition in which the doctors were placed it is necessary to remember that the poorer classes throughout Europe are banded together for medical purposes into lodges. In France it has been estimated that there are 200,000 of these lodges, and the medical journals of that country are just now up in arms because the managers of these lodges have reduced the age at which a child may be admitted to membership from the sixteenth to the fourteenth year. In Germany it has been customary for the physicians of a given locality, or a part of them, to act as lodge doctors, receiving a stipulated fee for each visit made. The usual fee is one mark (25 cents), for a visit, and one-half that sum for an office consultation. The size of the fee was not, however, the cause of the quarrel between the management of the lodges and the physicians. Some of the most progressive lodges have been introducing what is known as Landmann's system. In accordance with this plan, the lodge engages one or more physicians as may be needed, at a stipulated price, and with the agreement on their part that they will not engage in other practice, while the members of the lodge promise in return that they will not consult any other physician either for themselves or for any member of their families. It was against the introduction of this system that the physicians in Barmen and Remscheid struck. In the latter place they lost their case as the management of the lodges held firm and imported seven young physicians to attend to the health of their members. In Barmen the local physicians were more successful, and with the help of a part of the members of the lodges who were loyal to them, they forced the management to abandon the plan for two years. The tendency seems to be toward the formation of larger combinations of lodges under one management, and on the other hand, in Berlin there is a society of lodge physicians whose object is to look after their common interest.

Perhaps no activity in a community is so wastefully carried on as that of looking after the wants of the sick. Many a physician spends more time in getting about from place to place than he does in doing the actual work for which he is called; while patients travel half way across the continent at great expense to consult some man who may or may not be better fitted to advise them than some one much nearer home. The application of the same methods which have made business and manufacturing concerns grow larger and larger, may one day result in the formation of a medical trust. The preliminary problems are being worked out in Germany at the present time.

The same conditions prevail in England to a less extent, and the *British Medical Journal* of December 10th, laments that any physician in Skipton should be willing to look after the health of the members of a "club" at the rate per year per member of only three shillings. Some of the Skipton physicians held the same opinion and gently whispered "four shillings, please," but the managers of the club said "If you do not like three shillings, we shall get some one from out of town," and the local doctors said no more. The *British Medical Journal* counsels "a little more professional union, which will replace such rates as three shillings or four shillings per member per annum, by those of six shillings to eight shillings. It is often a wise step for the local profession to form a dispensary for their poorer patients in opposition to any medical institute organized by the friendly societies." Dispensaries have been used for all sorts of objects, but here is certainly a novel plan—to start a free dispensary in order to compel a charitable organization to pay higher wages.

MAGNIFICENT ENDOWMENT FOR RESEARCH IN INDIA.—A LESSON.

THE English newspapers have recently announced that Jamsetji Tata, a wealthy native Indian, has given £250,000 ($1,250,000) for the establishment of a teaching university and research institute in India. The scheme of studies and investigation provides for a triple division of the subjects to be

worked at. (1) Scientific and technological, (2) medical and sanitary, (3) educational and philosophical. The new institution is to do post-graduate work entirely, and is not supposed to interfere at all with existing universities in India. The medical and sanitary departments, it is expected, will be given special prominence, and it is hoped that the work done will go far toward making the Indian peninsula more inhabitable for its own sake and less of a danger to the outer world because of the contagious diseases it may foment.

The announcement is of special interest to us as Americans because, it is added, the new institution is to be modeled, in its general features, at least, after our own Johns Hopkins University at Baltimore. The compliment is a most flattering one, but not more than is deserved by the University, whose thorough scientific methods, whose advanced but conservative workers, whose adoption of what is best in the most practical modern pedagogic lines, and whose success in teaching and original investigation have added greatly in these last few years to America's reputation both in England and on the Continent.

To Johns Hopkins we say *Macte virtute.* To American institutions which would look abroad for models for their teaching methods and scientific departments we are tempted to repeat an old saw, *si vis examplar circumspice.* Let us hope that the modern prophet in scientific and educational matters will not be without honor save in his own country. We in America are seemingly just entering on an era of unexampled prosperity. Good times will see the foundation of many a scientific institution and the development of others. May we hope that foundations and endowments will be directed to as good a purpose, and the policies of the institutions they conserve be managed with an eye as single to true scientific progress in pedagogy and investigation as has been the case at Johns Hopkins, *ad majorem scientiæ gloriam.*

ECHOES AND NEWS.

The Wrong Tooth.—A medical practitioner in England was sued recently for £25 damages for extracting the wrong tooth. It seems there was a bony growth at the root of an aching molar which was either adherent to or projected beneath the neighboring tooth. When the bothersome tooth was extracted the other came with it. Judgment was for the defendant with costs.

An English Hospital in Rome.—The English colony in Rome has determined to found a hospital in that city for the benefit of English residents and visitors. The estimated cost for erection and equipment of the new institution is £7000. Nearly the whole of this sum has been already raised. It is confidently hoped that the hospital will be ready for the reception of patients at the beginning of next year.

State Aid for Deaf-Mutes.—Various institutions in New York State for the care of the deaf now receive from the State $223,226 a year. There is a new educational bill pending in the State Legislature which seeks to compel the State to pay for the maintenance of all the pupils in schools for the deaf and blind. This bill, if passed, would add $200,000 to the above-mentioned expenses now incurred by the State.

A Physician's Gold Fetters.—One of the earliest fees for medical treatment of which there is any record is mentioned by Herodotus, who says that Darius gave the slave Democedes two pairs of gold fetters. The usual fee at that time in Greece was very small, about sixteen cents in our money, yet there were notable exceptions, as when King Antiochus paid $150,000 for medical treatment, and later, when the Emperor Claudian paid his physician about $20,000 a year. The latter was twice the annual income of the eminent physicians of that time.

Alkaline Glassware.—A German chemist calls attention to the fact that certain test-tubes, beakers, and the like, made in Germany, are so alkaline in character that they impart some of this quality to liquids placed in them. The vessels are said to be well made and to be of very clear glass but it is evident that they might easily be the source of serious error. They would be especially liable to mislead medical men who have not the means at hand of making control observations and might in certain cases give data that would be the source of uneasiness.

The Swiney Prize.—This has just been awarded to Dr. J. Dixon Mann, Professor of Forensic Medicine and Toxicology in Owens College, Manchester, for his work on "Forensic Medicine and Toxicology." The prize is a very valuable one (almost $1000). It consists of a silver goblet of the value of £100 and money to the same amount. The prize is given each alternate five years for works in English on general jurisprudence and medical jurisprudence. The award is made by a committee from the Society of Arts and the Royal College of Physicians of London.

Deaths from Ether as an Anesthetic.—In a review of Dr. Bell's pamphlet on "The Safety of Chloroform as an Anesthetic," the London *Medical Press and Circular*, January 25, 1899, states that there have been no less than fifty-four deaths from ether used as an anesthetic during the year 1898 in England alone. This is a strikingly large number, and is certainly more than the advocates of ether anesthesia usually admit into their statistics of the subject. Can our contemporary give the facts that

substantiate its statistics? The subject is a most important one.

Obituary.—Dr. Robert Harris, a well-known figure in Philadelphia medical circles, died at his home in Philadelphia, February 21, 1899. He was the son of a physician, the brother of William Harris, formerly president of Princeton College, and the grandson of Robert Patterson, a former provost of the University of Pennsylvania. Dr. Harris was born in 1822, and was the author of a number of articles in medical journals, and the editor in this country of "Playfair's Midwifery." In recent years he has been known for patient statistical research on the subject of Cæsarian section, extending his enquiries to the after-health of the mother and the length of life of children thus delivered.

New York as Seen in Vienna.—The *Klinische therapeutische Wochenschrift* of Vienna begins the year with an article on the epidemic of grip in New York. The writer says that owing to the undiminished spread of the disease the Board of Health was compelled to take extreme measures for its control. Among others he mentions the following: The fumigation of the street-cars, and the disinfection of all the mats and carpets in them; the closure of the Medical Department of Columbia University on account of the sickness of eight professors and numerous students; the closure of the Wallack Theater, and finally, the prohibition of kissing, though whether with or without a penalty was unknown to the writer.

Prevention of Tuberculosis Discussed.—A committee representing the International Congress for the Prevention of Tuberculosis, which will sit in Berlin from May 24 to May 27, 1899, under the patronage of Empress Augusta Victoria and the Honorary Presidency of the Imperial Chancellor, Prince Von Hohenlohe called recently at the United States Embassy to enlist American interest and cooperation in the undertaking. Dr. C. W. Stiles, scientific attaché to the United States Embassy, is preparing a report for the medical press on the scope and purpose of the congress, whose main object is to devise ways and means of combatting tuberculosis, especially as a popular scourge. Emperor William will entertain the members of the congress.

A Princely Surgeon Honored.—The far-famed ophthalmologist, Duke Carl of Bavaria, has recently been honored by an election to honorary membership in the Academy of Medicine of St. Petersburg. He has just passed his sixtieth birthday, and during the present winter has given a large share of his time to the conduct of his eye-clinic in Munich. His brother, Prince Ludwig Ferdinand, who is also a medical graduate, has lately been promoted to the rank of general of cavalry. He, however, only saw active service in the rank of lieutenant, while his brother, Duke Carl, commanded his wing of a cavalry regiment as major. Prince Ludwig receives patients in his palace in Munich, and is a visiting physician of the University clinic. On account of one of his children being ill with an infectious disease, he has refrained from all attendance upon social functions for a month or more.

An Unpardonable Fault and Its Punishment.—A telegram in the *Morning Leader* of London announces, according to the *Medical Press and Circular* (London), that Professor Wiggin of the College of Physicians of Chicago has been suspended from his professional chair because in one of his lectures on pathology he described woman as a "two-legged dyspeptic owl," and said that the "female form divine" is the climax of Nature's irony. One London contemporary remarks that "of course the women's clubs are up in arms at such an insult." It does not state the nature of the clubs the women have taken in their arms, but they should at least be studded with nails to avenge so dire an insult properly. It was somebody in the "wild and woolly" West who inflicted that other definition of woman on a long-suffering world "a constipated biped without feathers." Of course these ungallant remarks deserve condign punishment. We are glad our London contemporary takes the whole affair so seriously for, of course, it is for peccadilloes like this that we hire and discharge our medical professors in America, not for any supposititious scientific talents or attainments that they possess.

A Physician's Rare Good Fortune.—A decision in a Surrogate's Court at Kingston, N. Y., settles a dispute as to an inheritance of a quarter of a million dollars. It arose out of a will in which the testator left his entire fortune to his physician. It was disputed by the testator's half-sister who claimed it as being the nearest relative. The evidence showed that the testator was taken ill while spending a few days at a hotel at Kingston. He sent for a physician, who, in spite of the fact that his patient was poor and unable to pay full fees, watched him through a serious illness and gave him the most devoted attention. The patient after his recovery remained at Kingston to be near his physician whose kindness had won his affection. Quite unexpectedly, an uncle, who during his life had taken no notice of the patient, died leaving him his entire fortune. He was anxious then to show his gratitude to the physician and upon his death, which occurred recently, the latter discovered that his friend had left him the amount mentioned above. The reason assigned for the bequest is that the physician befriended him when he was poor and when all his relatives neglected him. The decision of the Surrogate upholds the will.

A Hygienic Decalogue.—We clip the following from the *Lancet* for February 11th: Dr. Decornet of Ferté sur Aube, France, is announced as the winner of a prize offered by the extensive and well-known publishing house of Hachette & Co. for the ten best maxims for preserving the health, which were to be published in the "Annual Almanac" issued by the firm. These are the prize maxims: (1) General Hygiene: Rise early, go to bed early, and in the meantime keep yourself occupied. (2) Respiratory Hygiene: Water and bread sustain life, but pure air and sunlight are indispensable for health. (3) Gastro-Intestinal Hygiene: Frugality and sobriety are the best elixir vitæ for a long life. (4) Epidermal Hygiene: Cleanliness preserves from rust; the best kept machines last longest. (5) Hygiene of Sleep: A sufficiency of rest

repairs and strengthens; too much rest weakens and makes soft. (6) Hygiene of Clothing: He is well clothed who keeps his body sufficiently warm, safeguarding it from all abrupt changes of temperature, while at the same time maintaining perfect freedom of motion. (7) Dwelling Hygiene: A house that is clean and cheerful makes a happy home. (8) Moral Hygiene: The mind reposes and resumes its edge by means of relaxation and amusement, but excess opens the door to the passions, and these attract the vices. (9) Intellectual Hygiene: Gaiety conduces to love of life, and love of life is the half of health; on the other hand, sadness and gloom help on old age. (10) Professional Hygiene: Is it your brain that feeds you, don't allow your arms and legs to become anchylosed. Do you dig for a livelihood, don't omit to burnish your intellect and elevate your thoughts.

SPECIAL ARTICLE.

THE "LANCET" AND QUININ IN MALARIA.

THE London *Lancet* of February 4th, before it had seen our answer, we suspect, comments approvingly on Dr. Hare's criticism in the *Medical Record* of our position with regard to the use of quinin in malaria and especially as to its use in black-water fever, malarial hematuria or hemoglobinuria. The *Lancet* considers that Dr. Hare is very sensible in echoing the caution which Koch has lately given with regard to the use of quinin in malarial hematuria, "a caution, indeed, which had been given before by many writers in America and especially by many physicians in the States."

Our views on the subject have aroused a good deal more attention than we anticipated. We do not pretend to any profound knowledge of the subject gathered from our personal experience. We stated practical conclusions for the benefit of the general practitioner based on the opinions of thoroughly conservative experts in the treatment of malaria.

We shall now quote more fully the authorities substantiating our position and ask a candid judgment as to whether it is not the only position possible for an unprejudiced medical editor to hold: Osler in the last edition of his "Text-Book" adds to his article on malaria the following clearly expressive paragraph which was evidently penned after consideration of the articles called forth by Koch's declarations regarding his experience in South Africa. "An interesting question is much discussed whether quinin does not cause or at any rate aggravate the hemoglobinuria. We have not yet seen a case in which this condition has occurred as a result of the use of the drug. It seems localized in certain sections and Bastianelli states that it is not seen in the Roman malarial fevers. He recommends that in any case of hemoglobinuria if the blood shows parasites quinin should be administered freely. In the post-malarial forms quinin aggravates the attack. In the active malarial infection the patient runs less risk with the quinin."

In the *Lancet* for December 24th there is the discussion of a case of malarial hemoglobinuria before the Pathological Society of London. Dr. W. H. Crosse says of his patient: "In spite of his improving under quinin he had a slight relapse of the hemoglobinuria which disappeared while he was having still larger doses of quinin." Dr. Crosse was until recently the chief medical officer to the Royal Niger Company of Central Africa. He has had an extensive experience with malarial hemoglobinuria including a number of attacks of the disease himself. He discussed this subject at the opening of the medical session at Guy's Hospital last fall (see *Brit. Med. Jour.*) and completely disagreed with Koch. He attributed his own attacks of malaria to his failing to take quinin. He tells the story of a friend who foolishly decided against the use of quinin and suffered a very severe attack from which he was saved only by the free use of quinin. He insists that his friends going to Central and South Africa shall have no foolish notions with regard to any possible harm produced by quinin during the course of the affection.

Dr. Moffat, principal medical officer of the Uganda Principality, writes to the *British Medical Journal* of September 24th as follows: "Professor Koch may be right when he says that quinin poisoning causes hemoglobinuria. I do not possess sufficient knowledge to criticise that statement. This much I will say, that after seven years in Eastern Equatorial Africa, during which time I have treated many hundreds of cases of malaria, I have never seen a man die of fever when quinin was given properly and early in the case. The fatal cases whether complicated with hemoglobinuria or not have all been those in which for some reason quinin was not administered, or was given in very small doses or else resorted to only when the case was practically hopeless.

"Out of nine cases of black-water fever which I have had two were fatal; in both the administration of quinin was neglected until too late. All the cases which recovered were treated with heroic doses of quinin with one exception. In this one case 30 grains of quinin were given in the twenty-four hours and the attack lasted four days, the hemoglobinuria subsiding gradually. In the other cases 60 to 120 grains in the twenty-four hours were given and the hemoglobinuria only lasted from twenty-four to thirty-six hours, stopping quite abruptly."

Laveran in the last edition of his book on "Paludism" says: "It is *always* necessary to resort to quinin for the treatment of acute paludism when we wish to break up the fever and especially in grave cases." Further on he continues: "The rarity of quinin hemoglobinuria shows that an individual predisposition is necessary for it. Malaria is only an accessory (adjuvant) cause. Sulphate of cinchonidine does not give rise to hemoglobinuria according to Pampoukis, and ought to be substituted for quinin in patients liable to it." Laveran, it may be seen, does not feel able, even in patients with an idiosyncrasy, to advise a radical departure from cinchona-bark treatment in some form.

Next we came to the question of the influence of quinin on the kidneys. The *Lancet* quotes with approval Professor Hare as saying that according to writers of experience quinin in full doses has similar effects (nephritis,

fatal malarial hematuria, and glomerulitis have been mentioned just above, and to all, or at least to some of these, the reference is made). "These effects are brought about by quinin producing renal congestion and inflammation." We should like to know some reliable authorities for this startling statement of the *Lancet*. If full doses of quinin produced renal inflammation Italy would be overrun with nephritis. So would all the malarial countries. The fact is that nephritis is no more frequent in malarial countries where quinin is used freely than it is elsewhere. Hirsch, the medical geographer, made a special study of this subject years ago, and his conclusions have never been contradicted. The *Lancet*, unwarrantably it would seem, is lending the weight of its authority to an opinion liable to do a great deal of harm when it states that quinin in therapeutic doses ever produces nephritis except in the rare cases in which idiosyncrasy exists.

Laveran discusses in his book (before mentioned) the complications to which the use of the salts of quinin may give rise. He mentions toxic symptoms, hemoglobinuria, icterohematuria, cutaneous eruptions, visual and auditory phenomena, and oxytoxic properties, but says not a word of nephritis. Rem Picci, who made a study of nephritis complicating malaria in Rome, and who has collected the statistics of over 7000 cases of malaria that occurred in the Roman hospitals during the last four years said in *Il Policlinico* last year:

"The treatment of the kidney affection (of malaria) is the same as that of the malaria itself. Quinin, which according to some authors, causes albuminuria and hemoglobinuria is not contraindicated, but on the contrary is indispensable. These symptoms occur with or after the malarial paroxysm and before the employment of quinin, they get worse with every new attack and disappear with the malaria itself after the energetic use of quinin."

We sincerely hope then that the omniscient editor who sits up aloft in the *Lancet* offices and dictates, without quoting his authorities, *ex cathedra* conservative opinions to an inexperienced medical public, will let us share in the special illumination on this subject vouchsafed to him. The subject is an extremely interesting and important one. Let us have the facts and the figures to demonstrate why we should hesitate to use full therapeutic doses of quinin whenever there is active malaria despite the presence of nephritis, of albuminuria, or of hemoglobinuria. As far as our researches into the literature of the subject go the authorities, who speak from experience, are on the other side.

For Obstinate Constipation in Acute Meningitis the following mixture is recommended as suitable for administration to a child:

℞	Ol. tiglii	*m.* ii
	Mucilag. tragacanth. . . .	q.s.
	Syr. zingiberis	ʒi
	Aq. dest.	ʒii.

M. Ft. emulsio. Sig. One to two tablespoonfuls every fifteen minutes until the bowels act.—*Barthes* and *Sanné*.

CORRESPONDENCE.

OUR PHILADELPHIA LETTER.

[From Our Special Correspondent.]

A NOTE ON THE PRACTICAL USE OF HYPNOTISM—THE DIAGNOSIS OF ACUTE TUBERCULAR INFECTION FROM PNEUMONIA AND TYPHOID FEVER—SOME RECENT CHARITIES—HOSPITAL NOTES—PERSONAL NOTES—OBITUARY—HEALTH STATISTICS.

PHILADELPHIA, February 28, 1899.

AT a meeting of the Philadelphia County Medical Society held Wednesday evening, February 22d, Dr. J. Madison Taylor read a paper, entitled "A Note on the Practical Use of Hypnotism." Hypnotism is earning a place as an auxiliary to medicine and when its halo of humbug is removed it will be used more. The chance danger to be feared is that the physician using it will be branded as a charlatan—of danger to the patient there is practically none.

Dr. Taylor, after obtaining the consent of his patient, closes the eyes and finds that this is sufficient if he has the cooperation of the patient to the point of actual impulse. Among the successful cases he has treated were those of subjects suffering from alcoholism, the drug-habit, hysteria, insomnia, hysterical paralyses such as deafness and blindness, and from disorders due to disturbed functions. Several cases were detailed and in one patient Dr. Taylor said he had tried the effect of hypnotism upon the vasomotor system with the following result: He suggested to the hypnotized patient that one hand be cold, the other warm; this being successful he suggested that the cold hand be now warm and the warm hand cold, which he claimed was also successful. He then exhibited a girl, whom he called "the residuum of the gynecologic art," who was quickly put in a condition of apparent sleep and as easily wakened. Dr. Taylor said he would not pretend to give any explanation as to how the phenomenon occurred or why.

Dr. Charles K. Mills discussed the question and said that while he had brought the subject to the Society's notice some twenty years ago he had never had much success with it and while he could not say it was of *no* value, he thought its use limited and doubted if any permanent good follows its use in alcoholism- and drug-habits or if it is ever of value in melancholia.

Dr. Francis X. Dercum expressed views similar to Dr. Mills' and spoke also of the hypnotic-habit which those hypnotized frequently develop, a habit in which they bother the hypnotizer by continually wishing to be hypnotised. His explanation of the phenomena is that the neurons retract their processes, or means of connection, as they do in sleep, except those used for the sense of hearing. The neurons are made to retract these processes by fatigue on the part of the patient, induced either by staring at some object or by thinking intently on some one subject. He believes too that "conscious suggestion," when all the channels to the brain are open, should and does accomplish more than hypnotic suggestion when only one channel, that of hearing, is open.

Dr. Charles W. Burr then gave a history of mesmerism and hypnotism and quoted many clever tricks used by charlatans and others to deceive the public and as an example asked what evidence there was to show that Dr. Taylor's patient was not shamming. He did not deny hypnosis but agreed with Dr. Dercum and Dr. Mills in believing that very little if any good is accomplished by it.

The question was then discussed by Professor Newbold of the University of Pennsylvania, and Dr. Orville Horwitz, who said he had removed tuberculous glands of the groin from a professional hypnotizer's assistant without the aid of any anesthetic after the patient had been hypnotized by the professional. Dr. Hare related some observations made by himself and Dr. Martin when doing some experimental work with hypnotism on animals. Dr. Daland believes it should be against the law to practise hypnosis.

The Veterinary Department of the University of Pennsylvania has received a legacy of $5000 by the will of the late Josephine Lippincott and St. Agnes' Hospital and St. Mary's Hospital each $1000 by the will of the late John H. Mullin. Mrs. Elizabeth L. Devine has left an annuity of $1000 to the sisters of St. Joseph's Hospital, and the residue of her estate after other bequests are paid is to be divided among St. Mary's, St. Agnes', the Episcopal, and the German Hospitals.

An addition to the Easton Hospital, costing $12,000, increasing the total number of beds fifty-four, was opened on Washington's Birthday. There is also a childrens' ward containing twelve beds.

Professor William Libbey of Princeton on Washington's Birthday gave an illustrated lecture on the Peary Relief Expedition to the students of the Jefferson Medical College.

Dr. J. Chalmers DaCosta has been appointed surgeon to St. Joseph's Hospital in the place of Dr. John H. Packard who has resigned.

Dr. Matthews of Louisville, President of the American Medical Association and Dr. Long, Professor of Therapeutics at the University of Buffalo, were introduced last week by Dr. H. A. Hare to the senior class of Jefferson Medical College to whom Dr. Matthews made a brief address on the duties of the physician.

The number of typhoid-fever cases has again increased to an alarming figure, no less than 421 *new* cases having been reported this week against 287 the week before, an increase of 134. The total number of deaths occurring in Philadelphia during the week ending February 25th, as reported at the Health Office, was 618, an increase of 91 over the previous week and of 150 over the corresponding period of last year. The total number of new cases of contagious diseases was 506, reported as follows: diphtheria, 52 cases with 16 deaths; scarlet fever, 33 cases with 1 death; typhoid fever, 421 cases with 38 deaths.

Health Report, New York City.—For the week ending February 25th: Diphtheria, 184 cases, 24 deaths; scarlatina, 170 cases, 18 deaths; tuberculosis, 281 cases, 194 deaths; typhoid, 18 cases, 7 deaths.

MEDICAL MATTERS IN CHICAGO.

[From Our Special Correspondent.]

METHODS OF CHILD-TRAINING—CHARTER OF INDEPENDENT MEDICAL COLLEGE REVOKED—FILARIA SANGUINIS HOMINIS—SKELETON IN MEDICO-LEGAL ANATOMY.

CHICAGO, February 26, 1890.

THE Chicago Board of Education will be asked to take the initiative in new methods pertaining to child-training. A proposition has been made to ascertain the physical endurance of the children in the public schools by Dr. W. S. Christopher. It is based upon the theory that at certain ages children are more liable to fatigue than at others, and that during such periods the requisite is comparative rest. Investigations by Dr. W. O. Krohn of the Hospital for the Insane at Kankakee, conducted among 32,000 children, have indicated that at the age of eight years the fatigue period of a child is at its highest. From that age it decreases. Investigation also shows that the fatigue-period recurs in cycles during the day, generally in the morning between the hours of ten and eleven. If these results are substantiated by the tests which Dr. Christopher hopes to have introduced into the Chicago schools, some changes in the course of study will present themselves as necessary. It will seem advisable to have the studies of the third grade, which the child reaches at the age of eight years, made lighter, and to have the lighter instruction of the day come at the hours at which the fatigue is noted to be the greatest. The tests consist of measurements, weighing, and of the enduring power of the muscles.

Diplomas entitling their holders to practise medicine are no longer to be issued by the Independent Medical College of this city, unless the judgment recorded recently in Judge Baker's court is overruled by the Supreme Court. The court finds the defendant college guilty of issuing illegal diplomas, as charged in the quo warranto proceedings, and has revoked the charter of the institution. It is said that motions for a new trial and for arrest of judgment were overruled, but an appeal to the Supreme Court was allowed.

At a meeting of the Chicago Medical Society, held February 15th, Dr. J. O. Nelson read a paper on the subject of filaria sanguinis hominis, and presented two mounted specimens of the hematozoon which were in the chylous urine of the patient. The case is of peculiar interest inasmuch as the patient has always been a resident of the United States, having been as far South as Florida, but never having been in a foreign country. The history is as follows:

Mr. R., aged sixty-six years, a resident of Indiana for the past thirty years. Previous to this was a resident of Ohio. In the latter State he was afflicted with malarial fever of the intermittent type to a severe degree, and was only relieved by change of climate when he moved to Indiana. No date of infection can be discovered except mosquito-poisoning, malaria, or the fact that nearly ten years ago he drank from a well which contained dead organic material and which caused him to immediately vomit, showing its extremely poisonous character. Early

in 1898 the patient had a severe attack of catarrhal jaundice, which jaundice was very slow to disappear, and was attended with enlargement of the liver. Early in the fall of 1898 the patient was attacked with a violent impetigo, together with an extreme hyperesthesia of the skin. There also developed a peculiar form of darting pains which occurred in any part of the body, or extremities, only lasting a few seconds, but being knife-like in character.

The patient is a well-preserved man; has absolutely no specific history, and is of very temperate habits. Physical examination shows internal organs normal, except for a little tenderness over the gall-bladder. Lymphatic swellings exist on the ankles with a tendency to break down, and abscess. Periosteum over both tibiæ thickened, the ankles edematous. During the past summer the patient developed a tendency to drowsiness to such an extent that he has trouble to keep awake during the daytime, this being entirely unnatural as he is of an energetic and active disposition. Several times last summer he noticed that he had no desire to micturate from morning until night, and the edema of the ankles increased. About November 1st his first hematuria occurred in the evening, and the next day the urine was of a chylous character, but Dr. Nelson found no filaria in these specimens. The first specimen of urine he examined was milky, specific gravity 1020, alkaline, and in each drop of the precipitated specimen from one to three active worm-like bodies, in constant motion, from 1/100" to 1/200" in length, easily examined under the low power, and these worm-like bodies he pronounced to be the embryos of filaria sanguinis hominis. Up to the present time he has not succeeded in finding the female parent worm.

At a recent meeting of the Chicago Medico-Legal Society, the subject of the skeleton in medico-legal anatomy was discussed, and the most interesting feature of the discussion was the remarks of Dr. William T. Eckley, who, in part, said: (1) There is no difficulty in identifying human bones if the whole human skeleton be present, anthropoid to the contrary notwithstanding. (2) The smallest fragment of bone can be identified microscopically even in the absence of Haver's canals. (3) In case of fragmentary bones the medical expert should advance no opinion as to the precise origin, but content himself with stating whether or not said fragments are bone. (4) If there is firm bony union of all the epiphyses, if the greater number of the emissary foramina are closed, if the constant foramina are shown to exist, if the secondary foramina are demonstrable, if the bones are solid and their muscular attachments well marked, then our conclusion is, these bony remains are of an adult human being. (5) In the determination of sex the pelvis is the chief guide, but little or no evidence is furnished by the pelvis before puberty. After puberty, even when the entire pelvis is recovered, only a very guarded opinion should be given as to the sex of the individual. (6) The prognathous skull of the negro, the pyramidal skull of the Asiatic, and the oval skull of the Caucasian, wanting in marked prominences and undue compressions is everywhere conceded in determining racial generalizations.

Conclusions.—(1) Given a sexually known skeleton, certain minor differences are found in the majority of cases between male and female skeletons; but given a sexually unknown skeleton, these minor differences become probabilities only subject to such grave exceptions as to render testimony practically useless, bombastic and even dangerous in forensic medicine. (2) While the pelvis is the chief guide in determining sex, still evidence founded thereon can be no more than presumptive and circumstantial, a bad variety of the poorest class. (3) In identifying individual bones, at least some one well-marked characteristic point should be present to make good evidence. Each bone has characteristics. Fragments of bone possessing characteristic features of individual bone make reliable testimony. A femur may be identified by a fragment no bigger than a dime, providing the tereal impression is present. The lacrimal crest, the vidian canal, the facial canal will identify respectively the bones to which they belong. The absence of characteristic markings makes medical testimony more culpable and far more dangerous than the average homicide. (4) Transition from compact to cancellous bone is easy, logical and gradual. (5) Pneumatic cancellous bone has a demonstrable lining when recent. Its irregular smooth cells cannot be mistaken for cancellous non-pneumatic bone tissue. (6) The practicability of introducing bones in the identification of sex is questionable, since some females are skeletally male and vice versa; such testimony is pernicious since the bone offered in evidence may have been of this class. (7) If sex can be identified by a fragment of bone, why cannot the liver and stomach, the heart and appendix, the kidney and brain be introduced in evidence with even greater propriety? These are studied both microscopically and macroscopically much more exhaustively than bone. Still in all the annals of law and medicine no such precedent can be found. (8) Sesamoid bones are in shape, constancy and development the most variable bones of the skeleton. They owe their existence to heredity, their development to muscular action. The shape of the articular surface corresponds inversely to the shape of the articular surface of the bone with which it articulates. Sesamoids are found in the tendons of some muscles where transmission of power is needed with maximum mechanical advantage, *e. g.*, the patella or knee-pan, the two in the flexor brevis hallucis pedis, and in the flexor brevis hallucis manus, in the peroneus longus. They bear no definite proportion to the size of the individual, since an adult of 150 pounds, who has used the sesamoidal areas much, may have larger sesamoid bones than one of 300 pounds, who has used this area little. The articular surfaces are lubricated by synovia, and are frequently the seat of subacute inflammation. As a class they have a very limited blood-supply. Sesamoid bones lose much of their specific character when subjected to the cleaning process. Logically sesamoid bones of the foot are larger in people who wear no shoes, free action of the foot increasing the activity of the sesamoid area and consequently aiding the development of the bone, since growth is the correlation of function.

The much-used feet and hands of a relatively small woman may have larger sesamoids than the little-used feet of a large man, and conversely. The idea of determining sex by sesamoid bones for medico-legal purposes is preposterous, illogical, and unscientific. The blood-supply of sesamoid bones like the blood-supply of tendons to which they morphologically belong, and of which they form an integral part, when present, is limited; hence, growth-changes are slow in these bones of necessity. For practical purposes, *vis.*, identification of sex, tight trousers, tight shoes, tight gloves, introduced in evidence as having a bearing on the modification of sesamoids should disqualify the medical jurist. (9) The temporal bone. In the criminal case of the State of Illinois *vs.* L. A. Luetgert, the alleged temporal bone of the State was in his opinion neither a temporal bone nor any part of a temporal bone, because: (1) It had parts and appearances inconsistent with a temporal bone. (2) It had not a single characteristic of this bone. When one recalls the numerous markings by which this bone is easily identifiable, as the internal ear, the ossicles, the styloid, the auditory meatuses, the glenoid, the canalia muscula, tuberarius and carotid canal and remember their absence in the alleged temporal bone, it would seem like lunancy to call this a temporal bone. Just as well might one swear to the identity of a coat, when every intrinsic vestige of the garment had disappeared except a button-hole. The alleged facial canal in the petrosa, containing the alleged facial nerve had neither the direction, size, shape, peculiar caliber nor environment of a facial canal. The medical jurists of the State saw no sexual marking in this canal. On microscopic examination this canal contained vegetable fiber, not a facial nerve with petrosal branches. (10) The alleged human femur was in his opinion not a femur, because evidence was clear, judging from the specimen, that the bone to which this specimen belonged was far shorter than any known or recorded hnman femur; the thickness of the wall was far below the average; the medullary canal did not take the proper direction and was withal much too small; everything by which to identfiy a human femur was absent except the medullary canal; nothing by which to identify the bone as human was present.

OUR LONDON LETTER.

[From Our Special Correspondent.]

CRITICISM OF THE GENERAL MEDICAL COUNCIL—ORGANIZED EFFORT AGAINST THE CONSCIENCE CLAUSE OF THE VACCINATION ACT—THE NEW LONDON POLYCLINIC—ORIGIN OF THE PLAGUE IN TURKESTAN.

LONDON, February 16, 1899.

THE echoes of the Hunter "apothecary-physician" suit are still reverberating. The journals are full of indignant letters from members of the profession, and it is talked of everywhere that doctors congregate, the general and unanimous verdict being that the Penal Committee would have been much better employed in disciplining some of the quacks and unqualified practitioners who swarm under their very noses. Their dulness of vision and supineness in the Nugent impersonation case are mos unfavorably contrasted with their petty officiousness and zeal in prosecuting poor Mr. Hunter for a mere error of medical etiquette.

On the other hand the L. S. A. is loudly demanding, if he is not permitted to term himself physician, upon what ground can the possessor of an M. B. or M. R. C. S. degree be allowed to term himself "doctor," and their reasoning is logically sound. The episode seems likely to do much good in ventilating the rank absurdities of the chaotic condition of English medical qualifications.

An organized movement has already been set on foot in the profession looking to the repeal of the new and infamous Vaccination Act of last year. The spectacle of 270,000 children granted exemption from vaccination already is certainly enough to damn the Conscience Clause without further trial and to raise the gravest apprehensions as to the mischief already done, and its effects upon the next smallpox epidemic. The Worcester Branch of the British Medical Association at its last meeting adopted formal resolutions demanding the repeal of the present act, the substitution of the old law, and an additional provision rendering revaccination between the ages of fourteen and sixteen compulsory. Copies of these have been sent to every other branch in the United Kingdom for their action. It will be remembered that the chief condition upon which the Government obtained the consent of Lord Lister and other prominent medical men to their late "experiment" was the promise of speedy legislation for promoting or enforcing revaccination. That promise ought to be promptly fulfilled, but we fear it will serve as a block to any more-radical action until full time has been given to the Government to make it good. Several of the boards of guardians, corresponding to our county supervisors, have become alarmed at the results of the Conscience Clause and actually forwarded petitions to Parliament for the repeal of the late Vaccination Act. The Kingston Board went further and voted that in future no applicant for employment in the workhouse or upon its staff should be appointed unless he could give satisfactory proof of successful vaccination.

It is reported that the authorities of the University of Cambridge are desirous of inducing Professor Adami of Mc Gill University to abjure his adopted country and return to Cambridge to take the Chair of Pathology made vacant by the death of Professor Kanthack.

A book was published a few weeks ago by one E. A. Heath, M.D., "Doctor of Medicine of the Hahnemann Medical College of Philadelphia (by Residence and Examination)" as he describes himself on the title-page, whose nationality can be readily judged by its title: "Vaccination or Blood-Poisoning with Animal Diseases." Copies were sent to the papers as usual most of which paid no attention to it, but the one great London daily which had been an ardent supporter of the Conscience Clause honored it with a pointed and most destructive review of nearly a column, pointing out a few of its most egregious misstatements and fallacies. One is worthy of mention as a sample, "Vaccination with cow-pox or grease is one of the first and foremost causes

of the increase of the various forms of consumption," which, in view of the marked *decrease* of nearly forty per cent. in the consumption death-rate suggests that if this is the kind of an "increase" caused by vaccination we can hardly have too much of it. We had no idea vaccination was such a panacea until Dr. Heath revealed it to us. To crown the climax of the rebuke and add insult to injury a curt editorial note was appended at the bottom of the column to the effect that the review had been written by a competent physician and expert, and the columns of the paper were not open for a further discussion of the subject! This, of course, brought a deluge of letters from furious "antis," accusing the paper of deserting its principles, to all of which the editor briefly replied that his principles were as sound as ever, but that he didn't propose to interfere with the freedom of reviewers whom he regarded as competent. So there is gruegruesome burbling in the antivaccination camp.

When John Bull once gets waked up and started to move the momentum of his own inertia carries him far and fast. The movement for the prevention of consumption is spreading steadily every day. Upon the medical side the latest development is the action of the Society of Health Officers in urging that tuberculosis should be a notifiable disease. But the Englishman's well-known tenacity of and jealousy for personal liberty and rights will pretty certainly prevent any such step for some time to come at least. On the side of the public a most sensible arrangement has been entered into between the farmers and butchers of one of the large market-towns in reference to tuberculous cattle. It was agreed that at every sale of a beef-animal both buyer and seller should pay a small sum into the hands of a joint committee and thus form a sinking fund out of which compensation should be paid for all beasts found to be diseased upon slaughtering.

The first formal meeting of the subscribers to the new London Polyclinic and Medical Graduates' College was held recently and was most successful. Nearly 300 medical men were present and the cordial support of the profession seems now assured for the new enterprise. Sir Wm. Broadbent was elected President of the Board of Governors and an Executive Council of twenty selected which contains some of the most prominent men in London. At a meeting of the council early this week it was decided to defer the opening of the college till April or early in May in order to give more time for the fitting up of the laboratories. This delay was urgently opposed by a strong minority of those who have done most to bring the enterprise to its present advancement and will be a great disappointment to many visiting American and other medical men now in London. But the allurements of a formal opening with solemn ceremonies and everything in apple-pie order for inspection by the world appealed too strongly to the majority of the council. It seems almost a pity in view of the fact that the scheme has been in process of incubation for nearly a year that a beginning could not have been made at once with the abundant clinical material at hand and the laboratory courses started one by one as their equipment was completed. The strength of the polyclinic is going to lie chiefly in its clinics and clinical consultations and lectures, and it will take months after these are actually started to get the full current of patients required properly flowing in their direction.

A most interesting story of how the plague came to Turkestan last autumn has just been told in the *Times of India* by a Russian baron. The outbreak was confined to a little mountain village but raged there with great fury, attacking no less than 381 of the 500 inhabitants and *killing all but three* of those attacked. This is a significant reply to those who claim that the disease has lost its virulence since the Middle Ages. Where it finds plenty of dirt it is as fatal as ever. Suddenly there appeared upon the scene a good angel in the shape of Dr. Lieven, an expert returning from Bombay with a supply of Haffkine's prophylactic serum and ordered to the smitten village by the Russian Government. All the survivors, about 120 in number, were promptly inoculated, and to the delight of all concerned the plague was stayed, no new cases developed, and the last death occurred on the fourth day after Dr. Lieven's arrival.

This was the part of science; what was that of religion? Upon careful investigation the whole frightful epidemic was traced to some sacred relics purporting to be the coverings of the tombs of saints brought back from a pilgrimage into Northern India by a holy man of the village, named Pir Isa. These rags had been handed over to a widow in the village to be cut up and made into amulets for the faithful, and this poor woman was the first victim of the plague. Shortly after the woman who had nursed her died, and then in rapid succession seven of her relatives. But the dangers of holiness were not over yet. Pir Isa was, of course, consulted in the matter, and he gave judgment that the relatives had been smitten because the widow had not been buried in the proper position enjoined by sacred law, and the only thing to be done was to dig her up and plant her properly, which was accordingly done, with the cheerful result that every one who assisted in the operation was smitten and died. If they had planted the old fakir and his filthy rags "in the prescribed position" it would have been more to the point.

A melancholy instance of the descent from the sublime to the ridiculous has been afforded by the death of one of the Lancers who took part in the celebrated cavalry charge at the battle of Omdurman. He was wounded and on the return of the regiment to England was sent to the Army Hospital at Netley. Last Thursday afternoon he was discharged as cured and sent home on furlough, and on Friday morning was found dead in one of the compartments of a railway carriage with an empty whisky-bottle by his side. Two other soldiers were with him, also unconscious, but only dead drunk. The finding of the post-mortem was, "Cause of death, acute alcoholism with partial asphyxia." There seemed little question that death had occurred in a debauch after long-enforced abstinence, partly from the effect of large amounts of alcohol upon his weakened constitution and partly from getting

raw spirit into the air-passages while drinking it out of a bottle with a drunken-man's recklessness.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

THE THERAPEUTIC VALUE OF CATHETERIZATION OF THE URETERS—DISCUSSION OF THE PAPER BY ISRAEL, LANDAU, KUTNER, POSNER, RICHTER, MAINZER, WOSSIDLO, AND OTHERS—PHLEBITIS AND THROMBOSIS.

THE closing meetings of the year of the Berlin Medical Society were largely taken up with a discussion of the therapeutic value of catheterization of the ureters. CASPER read the first paper upon this subject, including in it a description of three cases which had been cured by means of ureteral catheterization. Two of the patients suffered from a unilateral pyelitis, which was cured by repeated irrigation of the pelvis of the kidney with 1 to 1000 nitrate-of-silver solution by means of a catheter in the ureter. The other patient had a ureteral stone, which caused absolute cessation of urinary secretion for thirty-four hours. A catheter was passed into the ureter, and 1.5 ounces of oil were injected into the ureter with considerable force. Within an hour the patient passed twelve ounces of urine, and within the next fifteen hours more than six quarts. The stone was also passed into the bladder, and crushed and washed out. Such a fortunate result was not to be anticipated in every case, but at least the passage of the catheter gave the operator the knowledge of the exact situation of the stone. In cases of pyonephrosis a cure is most likely to take place if the interior of the kidney is so disposed that every part of the affected surface is accessible to the silver solution. This is more apt to be the case if the diagnosis of pyelitis is made in the early stages, and this is best done by separating the urine from the two kidneys before examination. It is a well-recognized principle that one kidney should not be removed until the functional capacity of the other has been determined. From one-fourth to one-third of the patients upon whom nephrectomy has been performed have died with symptoms of anuria or uremia. Several fatal cases have been reported in which the extirpated kidney secreted all the urine, the other being absent or functionally dead. Much has been said of the danger of ureteral catheterization. This point has surely been exaggerated. Albarran, Pasteau, and the writer have together made over 1500 ureteral catheterizations without setting up infection in a single instance. Still the procedure is a delicate one, and should be carried out with the greatest precaution.

ISRAEL thought that the views held by Casper were far too sanguine. He cited cases in whicn infection had followed close upon a catheterization of the ureters, and others to show that the examination of small quantities of urine obtained by means of the ureteral catheter is no sure guide to the functional capacity of the kidney. Moreover, if dependence were placed upon such examinations the golden period for the extirpation of a badly diseased kidney would sometimes pass by. He had removed a tuberculous kidney from a patient whose other kidney was also affected, and had thereby given an eight-months' lease of life to an individual who, unless the source of pyemic infection had been thus promptly removed, had scarce a week to live. The records of autopsies were also quoted to show the unreliability of conclusions drawn as to the permeability of the ureter, and the character of the kidney disease, as well as the hopelessness of trying to effect a cure by irrigation in most cases of renal pyelitis. One-third of his cases of pyelitis, for example, were associated with renal calculus.

LANDAU spoke of the catheterization of the ureters in connection with gynecologic practice. After testing the methods of Simon, Pawling, Kelly, and Casper he was convinced of the superiority of sight over touch in the passage of a catheter into the ureter, as time was thereby saved and damage to the mucous membrane avoided. The catheter is of the greatest value to the gynecologist, as by it the site of the ureter can be marked out during an operation for removal of the uterus or adnexa, or it may be passed at the end of such an operation in order to prove that the ureters have not been included in the ligature, or its presence in a fistulous ureter may reestablish the continuity of the canal, or its occasional passage may relieve a stricture of the ureter.

KUTNER said that it is not surprising that infection sometimes follows the use of ureteral instruments, as it is impossible to sterilize them. They cannot be subjected to heat without injury, and chemicals work to a great disadvantage in such slender tubes; and even if perfect sterilization could be obtained, there still remain the chances of carrying upward gonorrheal or other infection from the bladder or urethra.

POSNER spoke of the difficulty in determining the condition of the "other" kidney. He objected to the use of the phrase "normal average excretion" of urea, citing the case of a woman, one of whose kidneys was removed thirteen years before. Examination of her urine showed the amount of area secreted, within a short period of time, to vary from 15 to 29 grams. The variation was due to changes in the diet. It is necessary to estimate the amount of albumen ingested and excreted in urine, and in the stools before one can say with propriety that a kidney is or is not doing a normal amount of work.

RICHTER said that the variation in the excretion of urea is especially marked in the case of a nephritic kidney, such as the "other" kidney is apt to be. He thought it impossible to determine by either chemical or microscopical examination of the urine whether a kidney has the required amount of functional capacity. This can, however, be told by the examination of the blood according to the method of Koranyi. The method is a simple one, consisting in determining the variation in the freezing-point of the blood, the variation from the normal showing the amount of retained products of metabolism. In order to learn how much of the work is done by each kidney, it is only necessary to collect and examine the urine from each kidney for twenty or thirty minutes, for tests have shown that normally the two kidneys excrete almost exactly the same amounts of urea, chlorids, etc., if the

urine be collected for not too short a time. By comparing the result for either kidney, within the twenty-four-hours' product of both, one can readily determine what part of the total functional activity is to be credited to either organ.

MAINZER called attention to the fact that the ureter is not easily infected, as shown by its freedom from disease when both the kidney and bladder are affected. The kidney, like the bladder, is easily infected. One ought, therefore, to be very careful not to pass a ureteral catheter into the pelvis of the kidney except for the purpose of irrigation. For diagnostic ends this should never be done, as nothing can be gained thereby, and the risk of infection is much increased.

WOSSIDLO thus summed up his views upon the catheterization of the ureter as a diagnostic measure: It surpasses all other means of diagnosis in certain difficult cases of stone in the ureter, and also in light cases of pyelitis, with only slight clouding of the urine. In all other renal troubles it gives no information which might not be obtained by other methods less severe. It is in such cases, therefore, unnecessary, and it may be dangerous. The proof that one kidney produces normal urine is no proof that it will do so after the other kidney has been removed, a statement which has been substantiated by several fatal cases of nephrectomy.

In conclusion, CASPER warned against the mistake of confounding *post hoc* and *propter hoc* in the matter of ureteral catheterization. He mentioned the case of a young man who had an elevation of temperature after catheterization, which was hastily set down to the passage of the instrument, although the information was later secured from his physician that he had had for some time slight symptoms of pyelitis. He had previously shown the same elevation of temperature after the passage of a catheter into the bladder. In respect to the uncertainty of the conclusions which one is able to draw from the examination of small quantities of urine drawn from the catheters, Casper said the variations in health are so slight that when in diseased conditions one finds one kidney doing more than the normal amount of work, while the other is doing only a third or a fifth of the normal, there should be no hesitation in saying that the results of examination showed something that could be depended upon as to the relative functional capacity of the two organs.

At the College of Doctors of Medicine of Vienna, January 13th, MANNABERG discussed phlebitis and thrombosis, regretting the fact that so little attention is given to these subjects in text-books and lectures at present, while formerly they formed an important chapter. How important they are is shown by the fact that six per cent. of all autopsies performed in the general hospital of Vienna revealed the presence of thrombi. Of these 96 cases, 39 occurred in the course of an infectious disease, 30 in diseases of the heart or blood-vessels, 19 in neoplasms, 6 in senile marasmus, and one each in chlorosis and nephritis. A failure to make a correct diagnosis may lead the physician to recommend massage for the pain or swelling, thereby perhaps costing the patient his life. Thrombosis occurs most often in typhoid, influenza, tuberculosis, dysentery, diphtheria malaria, and cholera among the infectious diseases, less often in acute rheumatism, gonorrheal arthritis, scarlatina, smallpox, or measles. Virchow's theory that thrombosis occurs in infectious diseases on account of the failure of the strength of the patient has been much disputed, but as yet no one has proved the presence of bacilli in the thrombi. Another point for his theory is the occurrence of the thrombosis in most instances at the end of the disease, when the heart's power is much reduced. Bacteria are not found in the thrombi which arise in connection with valvular diseases of the heart and in fatty heart. The edema which is so common in connection with carcinoma is usually attributed to marasmus. It is really often due to the presence of thrombi. The pathology of thrombosis of chlorosis and leucemia is not clear. In these diseases the danger of a mistaken diagnosis and treatment is particularly great. Thrombosis after operations was also mentioned.

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK.

Stated Meeting, Held January 7, 1899.

THE President, P. C. COLE, M.D., in the Chair.

DR. THEODORE DUNHAM read the paper of the evening, entitled

SOME PRACTICAL POINTS IN THE PHYSICS OF STEAM-STERILIZATION.

(See page 257.)

DISCUSSION.

DR. E. M. FOOTE expressed himself as much interested in the paper and wished to know what were the best sterilizers on the market.

In order that the merits of the two principal sterilizers, the Kny-Sprague and the Bramhall-Deane, might be presented, representatives of both were asked to speak.

MR. BRANDT described the Kny-Sprague "Perfection" Sterilizer. The principle upon which it is constructed is the combination of a high temperature dry-air chamber with a high-pressure steam disinfecting-chamber. In other words, all material to be sterilized in this apparatus is subjected to dry heat at 250° F. (120° C.), and then to a current of steam of one atmosphere (fifteen pounds). This is accomplished by means of the annular jacket which surrounds the sterilizing-chamber. Steam is generated in this jacket, the safety-valve is set at fifteen pounds pressure, and a uniform temperature of 250° F. is maintained in the chamber. The temperature may be raised or lowered by adjusting the safety-valves. The air in the sterilizing-chamber is partly expelled by the high temperature, but, to make the sterilization more thorough and reliable, a vacuum is formed in the chamber by means of an air-ejector, which is worked by the steam-pressure contained in the jacket, or by the high-pressure steam of the house-plant if the apparatus be connected with the latter. A vacuum of from 20″ to 25″ can thus

be formed before steam is turned into the material to be sterilized, and in this way all dead spaces which may have formed are eliminated. The steam entering the sterilizing-chamber is then eagerly absorbed by the fabric which it penetrates rapidly and thoroughly. The temperature within the chamber being as high as that of the inflowing steam, no condensation takes place and therefore there is no wetting of the material in spite of the fact that the latter is thoroughly saturated by steam. If, however, it is desired that the dressings be absolutely free from dampness, drying can be accomplished by continuing the sterilization for about ten minutes longer in a dry vacuum-chamber as previously described. An apparatus which will sterilize by means of both steam and dry heat possesses a distinct advantage for animal suture material such as catgut and kangaroo tendon, which would be ruined by steam, may safely be placed in the dry chamber and subjected to a temperature sufficiently high to ensure complete sterilization.

MR. MAY described the Bramhall-Deane Sterilizer as consisting of a globe of copper or brass with a substantial circular door of cast bronze ground true against a flange of the same metal. The door is without a fastening or catch of any kind. It is absolutely steam- and air-tight from the pressure within and acts as a vacuum-valve to prevent possible collapse. It is a triumph of genius—economical and simple. The steam is supplied from a small generator or boiler placed a little below the globe, and entering from above drives the air out through the air-cock in the bottom of the globe, or through the open safety-valve at the top. This generator is furnished with a steam-coil, or burner for gas or petroleum heating, and has the advantage that should the fire be continued after the water has evaporated, the sterilizer itself will not be injured, merely the boiler, which may be repaired at a trifling cost. There is no cast iron in the whole apparatus. It is handsome, durable, and especially quick in operation where gas or petroleum is used for generating the pressure. It is furnished with a combination steam-gage and thermometer and safety-valve regulated to blow off at the proper temperature. It sterilizes perfectly and absolutely.

DR. COLE said he had examined both sterilizers and preferred the Kny-Sprague because it is possible to employ either steam or dry heat at will, because it has an air-ejector which creates a vacuum in the sterilizing-chamber before the steam is introduced, and because the sterilizing process occupies a much shorter time and there is a consequent large saving in heat.

DR. WHITMAN asked if it is absolutely necessary to have a vacuum in order to obtain complete sterilization.

MR. SPRAGUE replied that experiments have been made in which it was shown that steam will penetrate to the center of a mass of towels or gauze dressings much more rapidly and completely in a sterilizer from which the air has previously been expelled by the vacuum process. In one of these experiments a cake of ice had been wrapped in a blanket and placed in a sterilizer. After subjecting it to a temperature of 240° F. it was found that the ice was still unmelted. The same experiment was made with the vacuum process with the result that the steam penetrated the blanket and melted the ice. In another instance several eggs were wrapped inside of a lot of dressings and placed in the sterilizer. After subjecting them to a high temperature without the vacuum it was found that the eggs were still uncooked. The eggs were most thoroughly baked after being introduced into a sterilizer with the vacuum attachment.

DR. WALKER called attention to the fact that experimenters both in Germany and France have come to the same conclusions that Dr. Dunham has reached, *viz.*, that it is necessary that the steam inlet be placed at the top of the apparatus and that sterilizers which are not constructed upon this principle must be inferior to those which are. He believed that Dr. Dunham was the first in this country to call attention to this important fact, and referred to the fact that among steamfitters it is well known that in setting up radiators the steam is always admitted at the top and the cold-air outlet placed at the bottom.

DR. BREWER stated that the most extensive and elaborate experiments have been made by Dr. Rowe at the Boston City Hospital in regard to sterilizers and as a result the Kny-Sprague has been adopted as the most satisfactory.

REVIEWS.

A TEXT-BOOK OF OBSTETRICS. By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania. Philadelphia: W. B. Saunders, 1898.

THE reader of this scholarly work on midwifery will be inclined to ask Dr. Hirst to revise his preface in the next edition; he need make no apology for having written the book. It is a fresh, live contribution to the subject, written in a broad and catholic spirit, as with a learned pen, and gains by contrast to the various systems so much in vogue at the present day. Dr. Hirst has the experience, the facility of pen, and the knack of teaching; he knows how to separate the chaff from the wheat; the consequence is an admirable text-book of obstetrics, modern, scientific, convincing.

The subdivision of the work is much like that in most of the familiar text-books; but this cannot be avoided, nor is it uttered in criticism, for no man can create subjects. The views of the author are, after all, the interesting points. He prefers the Porro operation, for instance, to a Cæsarian section, where the latter operation is usually considered necessary. He induces abortion with metal dilators, premature labor with bougies. The immediate repair of the perineum is advocated, but not that of the torn cervix for the reasons of usual ignorance and aseptic unpreparedness. The chapter on puerperal sepsis is superb, and could accomplish immense good if it were universally studied, not merely read. It contains, by the way, for the first time in an obstetric work that we remember, a quotation from Holmes' immortal essay on "The Contagiousness of Puerperal Fever." It would be supererogation to speak of the scientific attitude of the

author in this chapter, for it is marked by the same breadth of conception and touch of scholarly genius which characterize the other parts of the book.

It is safe to say that if physicians took to heart the lessons imparted in this work the accusation could no longer be made that they, like the supposedly murderous midwife, are responsible for many puerperal deaths. For student and physician alike, this is one of the most satisfactorily written and clearly illustrated works on obstetrics, stamped with the authority of a man broadly grounded and trained, which has as yet been published. It will see many editions, for it deserves that distinction.

TRAUMATIC SEPARATION OF THE EPIPHYSES. By JOHN POLAND, F.R.C.S. With 337 illustrations and skiagrams. London: Smith, Elder & Co. New York: G. P. Putnam's Sons, 1898.

THE author states that little note is made of epiphyseal separations in the standard books on surgery, consequently these accidents are continually mistaken for fractures and dislocations. He hopes that this work may call attention to the subject and induce surgeons to publish reports of cases of epiphyseal separations that may fall under their notice in the future.

Epiphyseal separations following the classification of Foucher and Bruns are divided into three groups: (1) Through the conjugal cartilage uniting the epiphysis with the diaphysis. (2) At the epiphyseal line, the conjugal cartilage adhering to the displaced epiphysis. (3) Juxta-epiphyseal separation, or fracture through the osteoid tissue or newly formed bone of the diaphysis. The first and second varieties are rare, and occur most often in young children; the third is the more common form. The author is in accord with previous writers and experimenters that epiphyseal separations are rare as compared with fractures, and that the liability to the accident is greater when ossification is well advanced in both the epiphysis and diaphysis, leaving a weak point at the cartilage itself: thus it is more common in the second decade of life and after puberty.

The cause of the separation is usually a twist or strain, particularly over-extension at a joint, by which the protecting periosteum is ruptured; and those epiphyses are most liable to the accident which are of large area, and to which unyielding ligaments are attached at or about the junction with the diaphysis. Thus, of the cases in which the nature of the injury was established by anatomic specimens or by autopsy, or when the separation was compound, or when operation was performed, as in 321 of the 693 cases recorded, the statistics are as follows: The lower epiphysis of the femur, 84, or about 26 per cent.; the lower epiphysis of the radius, 50, or about 15 per cent.; the upper epiphysis of the humerus, 49, or about 15 per cent.; the lower epiphysis of the tibia, 22, or about 7 per cent. The reports of unverified or "simple" cases number 372, and it may be doubted if they repay the author for the years of labor spent in collecting and transcribing them. For example, but four verified cases of separation of the head of the femur are recorded, and one of these (Kocher) was really a fracture, yet the total number reported is thirty-one. Many of the cases are ancient, and serve rather to illustrate the character of the evidence on which the diagnosis was made than to convince one that it was correct.

The especial interest in epiphyseal separations lies in the treatment, and in the possible effect of the injury on the subsequent growth of the limb. The difficulties in treatment are caused by the proximity to the joint, and by the fact that reposition of the fragments may be prevented by the torn and displaced periosteum. In such cases the open operation may be required. In rare instances, growth may be checked by the direct injury to the epiphyseal cartilage or by subsequent infection and disease, or by exuberant callus formation, but in nearly all cases asymmetry and deformity are due to displacement of the epiphysis. If accurate apposition of the fragments is attained the subsequent result will be precisely like that of a fracture.

The main purpose of the writer was, apparently, to produce a book of reference on epiphyseal separations, but it may be that the account of the anatomy and physiology of growing bones admirably illustrated by specimens and Röntgen pictures, the suggestions as to the possible effect of sprains and injuries at the epiphyseal region, and their influence in inducing secondary disease will be of even greater value to those who are interested in the surgical diseases of childhood.

The book is well written, well printed, and well illustrated, and the author and the publishers are to be congratulated on a work that is a distinct addition to surgical literature.

MANUAL OF CHEMISTRY: A Guide to Lectures and Laboratory Work for Beginners in Chemistry. By W. SIMON, Ph.D., M.D., Professor of Chemistry and Toxicology in the College of Physicians and Surgeons, Baltimore; Professor of Chemistry in the Maryland College of Pharmacy. New (sixth) Edition. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1898.

THIS work, now in its sixth edition, has become a classic in its particular line. Its numerous editions point to its excellence, which a careful examination verifies. Among the more recent discoveries we note with pleasure a sketch on argon and helium, the elements isolated from the air by Lord Rayleigh and Professor Ramsay.

Dr. Simon's vast experience as a teacher was no doubt made use of in the edition before us in following the classification he adopted in his former editions. The division of this vast science into seven heads is both logical and comprehensive, while the grouping of all strictly theoretical principles in a separate chapter, instead of being scattered throughout the work, is a most laudable feature. The section treatment of analytical chemistry, though brief, gives the student considerable acquaintance with this branch of chemistry, and both organic and physiological chemistry are presented in a manner most intelligible to the student or practitioner in search of a clear understanding of these subjects in a general way. The plates of color-tests enhance the value of the work,

which in its whole make-up as well, presents an inviting appearance, making it deserving of its reputation as a standard work on this subject.

A SYLLABUS OF MATERIA MEDICA. Compiled by WARREN COLEMAN, M.D., Instructor in Clinical Medicine and Materia Medica in Cornell University, Medical Department. New York: Wm. Wood & Co., 1899.

THIS is the handiest of the small materia-medica compends which has come to our notice. In addition to a complete list of the drugs, with their preparations, doses, actions, and uses, arranged alphabetically, the book contains a list of the more important preparations, and several regroupings of drugs according to physiological and special actions or effects. The book is complete in its way, yet condensed into a well-printed volume of almost vest-pocket size.

A PRIMER OF PSYCHOLOGY AND MENTAL DISEASE FOR USE IN TRAINING-SCHOOLS FOR ATTENDANTS AND NURSES AND IN MEDICAL CLASSES. By C. B. BURR, M.D., Medical Director of Oak Grove Hospital for Nervous and Mental Diseases, Flint, Mich.; formerly Medical Superintendent of the Eastern Michigan Asylum. Second edition. Philadelphia: The F. A. Davis Co., 1898.

THIS syllabus, arranged for the instruction of nurses in the outlines of mental diseases, with especial reference to the care of the insane, has found a sphere of usefulness as a hand-book for students. The text is brief, concise, and very elementary.

A LABORATORY GUIDE IN URINALYSIS AND TOXICOLOGY. By R. A. WITTHAUS, A.M., M.D., Professor of Chemistry, Physics, and Toxicology in the Medical Department of Cornell University; Professor of Chemistry and Toxicology in the Medical Department of the University of Vermont, etc. Fourth edition. New York: William Wood & Company, 1898.

THIS book is designed for the use of students working in college laboratories, but it can be used with profit by anybody engaged in chemical analysis. It is published in a very handy style and is printed on one side of the page only, so that a reference to any subject can easily be made. An elementary knowledge of chemistry is essential to those working with the book as the chemical formula is used in each instance instead of the full chemical name of the reagent. This, however, is of great advantage, as much space is gained, and the subject is condensed with profit. There are no unnecessary details given, simply a bare statement of facts throughout, consequently the beginner will require the assistance of his teacher until he understands the general manner in which the tests are made. After this the book alone will direct him sufficiently to enable him to carry out all the simpler procedures with accuracy.

The book fulfils the purpose for which it was intended and can be recommended as a safe guide to those engaged in this line of work.

THERAPEUTIC HINTS.

For Uremic Headache.—

℞	Potassii citratis	ʒ ii
	Spts. juniperi	ʒ vi
	Spts. etheris nitrosi	ʒ ii
	Inf. scoparis	℥ vi.

M. Sig. A wineglassful three times a day.

For Dyspepsia with Flatulence.—

℞	Tinct. gentianæ, Tinct. valerianæ, Tinct. nucis vomicæ	aa	ʒ i
	Chloroformi		gtt. xx–xl.

M. Sig. Ten to twenty drops in water before meals.

Care of Breasts before Confinement. — During the last month or six weeks of pregnancy the breast, especially at and near the nipple, should be prepared for functional activity in the following manner: At night inunctions with lanolin should be practised, and in the morning the parts should be washed for several minutes with soap and tepid water, a soft cloth being employed, and gentle friction. Then the entire breast should be washed with cold water and carefully dried.—*Mabbott.*

Orthoform with Calomel.—DANLOS has found it possible to make practically painless injections of calomel by means of the simultaneous use of orthoform. He employed the mixture in a case of syphilitic glossitis, and not only was analgesia obtained at the time of the injections, but on the fourth day when there is usually a painful reaction, only slight local discomfort was evidenced.

For Leucorrhea.—The following treatment is said to cause considerable improvement in the local symptoms, and in the general condition:

℞	Quininæ hydrobrom.	ʒ ss
	Ol. theobrom.	ʒ v.

M. Ft. suppos. No. X. Sig. One suppository is to be inserted into the vagina daily.—*Wright-Hardwicke.*

For Cholera Morbus.—During the early stage of active vomiting and diarrhea the following mixture will be found helpful:

℞	Ac. carbolici	gr. viii
	Glycerini	ʒ v
	Tinct. opii camph.	℥ ii
	Aq. cinnamomi	ʒ iii.

M. Sig. For an adult one teasponful after each paroxysm until they cease.

Ointment for Rheumatic Phlebitis.—

℞	Ac. salicylici	ʒ iv
	Morphinæ hydrochlorat.	gr. v
	Lanolini	ʒ i.

M. Ft. unguentum. Sig. External use.—*Hirts.*

For Chilblains.—

℞	Chloroformi	ʒ ii
	Lin. belladonæ	℥ ss
	Tinct. benzoini comp.	ʒ ii
	Lin. saponis	℥ iii.

M. Sig. To be applied on lint for ten minutes, not to be rubbed in.

SCIATICA AND LUMBAGO

THESE diseases, although different in origin and nature, the one a neuralgic and the other a rheumatic affection, are generally associated. Hence, in the older ordinary treatment of sciatica and lumbago the element of pain was combated locally without regard to constitutional medication.

Tongaline which can be used internally and externally, besides being anti-neuralgic and anti-rheumatic, exerts a specific action on the excretory system, thus not only palliating the pain but thoroughly eliminating from the body the direct cause of the disease.

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A New Thing—and a New Name which, though literally translated (Blood Treatment), may not convey to every one a definite idea. It is a treatment which consists in opposing to a condition of disease the very power—good and sufficient Blood—that would naturally prevent it, that would still cure it spontaneously, and that actually does cure it spontaneously, wherever the blood-making work of the system is perfectly efficient; and therefore also *will* cure it, if a deficiency of the vital element be supplied from without, under proper medical treatment.

That Blood is such a power as here described, is an undisputed physiological fact. Its transmission from one animated organism to another, for the purpose of supplying a defect in the latter, is the substance of the Blood Treatment; and How to Do this, in different cases, is the form or description of the same. Blood may be taken from a healthy bullock (arterial blood—elaborated with due scientific skill); or it may be obtained in the well-attested living conserve known as bovinine, from any druggist; and may be introduced into the veins of the patient in either of four ways, that may be most suitable to the case: viz.: by the mouth and stomach; by injection, with one-third salt water, high up in the rectum; by hypodermical injection; or by topical application to any accessible lesion.

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Micro-photographed by Prof. R. R. Andrews, M.D.

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Medical Letters may be addressed to:

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